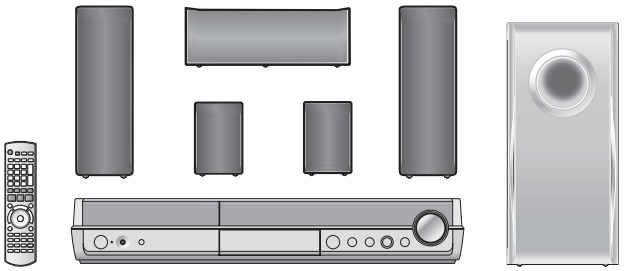
Recordable DVD Home Theater System

Operating Instructions

Model No. **SC-RT30**
SC-RT70

Operations Guide

Before using this product, perform setup and connections after carefully reading the Setup Guide.



The illustration shows SC-RT30.

Region number supported by this unit

Region numbers are allocated to DVD players and DVD-Video according to where they are sold.

- The region number of this unit is "**2**".
- The unit will play DVD-Video marked with labels containing "**2**" or "**ALL**".

Example:

Panasonic

Dear customer

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully.

Before connecting, operating or adjusting this product, please read the instructions completely. Please keep this manual for future reference.

These operating instructions are applicable to the following system.

System	SC-RT30	SC-RT70
This unit	SA-RT30	SA-RT70
Front speakers	SB-FS440	SB-FS71
Center speaker	SB-PC640	SB-PC740
Surround speakers	SB-FS441	SB-FS72
Subwoofer	SB-W440	SB-W940

About descriptions in these operating instructions

- These operating instructions are applicable to models SC-RT30 and SC-RT70. Unless otherwise indicated, illustrations in these operating instructions are of SC-RT30.
  RT30 :indicates features applicable to SC-RT30 only.
  RT70 :indicates features applicable to SC-RT70 only.
- Pages to be referred to are indicated as "➡ ○○".

Note

"EB" on the outer packaging indicates the United Kingdom.

EB

Web Site: http://www.panasonic-europe.com

RQT8672-1B

Caution for AC Mains Lead

(For United Kingdom)
("EB" area code model only)
For your safety, please read the following text carefully.
This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ⓐ or the BSI mark ⓚ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as stated below.
If in any doubt please consult a qualified electrician.

IMPORTANT
The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

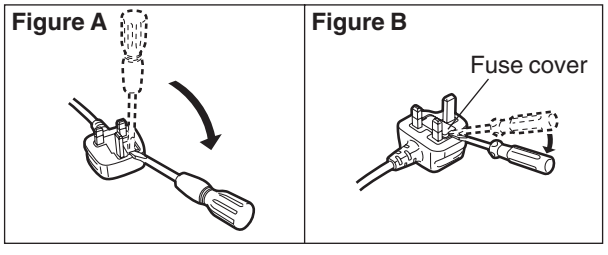
WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF—KEEP DRY.

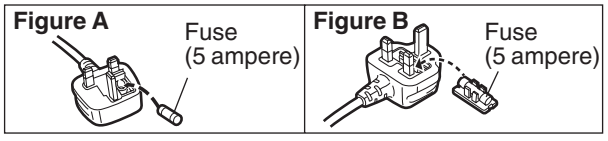
Before use
Remove the connector cover.

How to replace the fuse
The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.
Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.



2. Replace the fuse and close or attach the fuse cover.



CAUTION!
**THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF.
REFER SERVICING TO QUALIFIED PERSONNEL.**

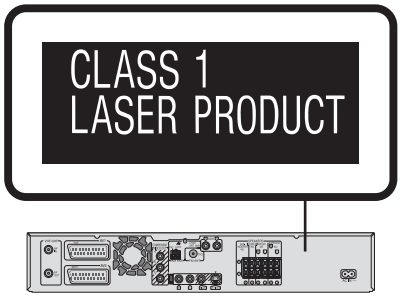
WARNING:
TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE, DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.

CAUTION!
- **DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.**
- **DO NOT OBSTRUCT THE UNIT'S VENTILATION OPENINGS WITH NEWSPAPERS, TABLECLOTHS, CURTAINS, AND SIMILAR ITEMS.**
- **DO NOT PLACE SOURCES OF NAKED FLAMES, SUCH AS LIGHTED CANDLES, ON THE UNIT.**
- **DISPOSE OF BATTERIES IN AN ENVIRONMENTALLY FRIENDLY MANNER.**

THIS UNIT IS INTENDED FOR USE IN MODERATE CLIMATES. (➡ 67, Specifications–GENERAL)

This product may receive radio interference caused by mobile telephones during use. If such interference is apparent, please increase separation between the product and the mobile telephone.

The socket outlet shall be installed near the equipment and easily accessible or the mains plug or an appliance coupler shall remain readily operable.



(Back of product)

DANGER – VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. FDA 21 CFR/Class IIIb
注意 – 打开时有可见及不可见激光辐射。避免光束照射。
注意 – ここを開くと可視及び不可視レーザ光が出ます。ビームを見たり、触れたりしないでください。
CAUTION – CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM. IEC60825-1 +A2/Class 3B
ATTENTION – RAYONNEMENT LASER VISIBLE ET INVISIBLE. CLASSE 3B. EN CAS D'OUVERTURE. EVITER UNE EXPOSITION AU FAISCEAU.
FORSIGTIG – SYNLIG OG USYNLIG LASERSTRÅLING KLASSE 3B, NÅR LÅGET ER ÅBENT. UNDGÅ AT BLIVE UDSAT FOR STRÅLEN.
VARO – AVATTAESSA OLET ALTTIINA LUOKAN 3B NÄKYVÄÄ JA NÄKYMÄTÖNTÄ LASERSÄTEILYÄ. VARO ALTISTUMISTA SÄTEELLE.
VARNING – KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK EXPONERING FÖR STRÅLEN.
VORSICHT – SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG KLASSE 3B, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
CAUTION – VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM. (IEC60825-1)
ATTENTION – RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ADVARSEL – SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO! – AVATTAESSA OLET ALTTIINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING – SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN.
VORSICHT – SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG. WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
ADVARSEL – SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VQL1J67

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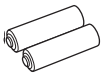
Accessories

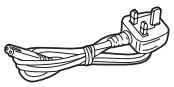
Please check and identify the supplied accessories. Use numbers when asking for replacement parts. (Product numbers correct as of March 2006. These may be subject to change.)

- ☐ **1 Remote control**
  RT30 (EUR7662Y20)
  RT70 (EUR7662YA0)

- ☐ **2 Batteries**
  for remote control



- ☐ **1 AC mains lead**
  (K2CT3CA00004)
  - For use with this unit only. Do not use it with other equipment.
    Also do not use cords for other equipment with this unit.



- ☐ **2 RF coaxial leads (black)**
  (VJA1123)

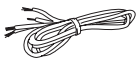
- ☐ **1 RF coaxial lead (grey)**
  (K1TWACA00001)

- ☐ **1 AM loop aerial**
  (N1DAAAA00002)

- ☐ **1 FM indoor aerial**
  (RSA0007-L)

- ☐ **1 Aerial plug adaptor**
  (K1YZ02000013)

- ☐ RT70 **2 Speaker cables**
  (REEX0449B-1L)



- ☐ **2 Sheets of speaker cable stickers**

- ☐ RT70 **16 Screws**
  (RYQX0249)

■ Sales and Support Information

Customer Care Centre

- For customers within the UK: 08705 357357
- For customers within the Republic of Ireland: 01 289 8333
- Visit our website for product information
- E-mail: customer.care@panasonic.co.uk

Direct Sales at Panasonic UK

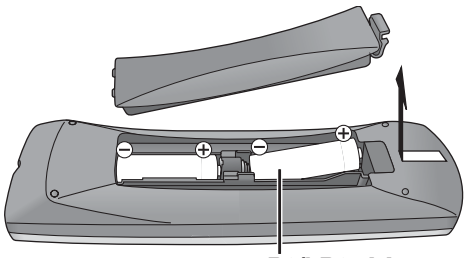
- Order accessory and consumable items for your product with ease and confidence by phoning our Customer Care Centre Monday–Thursday 9:00am–5:30pm, Friday 9:30am–5:30pm (Excluding public holidays).
- Or go on line through our Internet Accessory ordering application at www.panasonic.co.uk.
- Most major credit and debit cards accepted.
- All enquiries transactions and distribution facilities are provided directly by Panasonic UK Ltd.
- It couldn't be simpler!
- Also available through our Internet is direct shopping for a wide range of finished products, take a browse on our website for further details.

Interested in purchasing an extended guarantee? Please call 0870 240 6284 or visit our website www.panasonic.co.uk/guarantee .

The remote control information

■ Batteries

- Insert so the poles (+ and −) match those in the remote control.



R6/LR6, AA

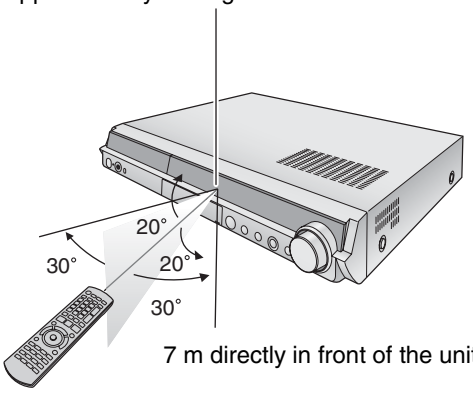
- Do not use rechargeable type batteries.
- Do not mix old and new batteries.
- Do not use different types at the same time.
- Do not heat or expose to flame.
- Do not take apart or short circuit.
- Do not attempt to recharge alkaline or manganese batteries.
- Do not use batteries if the covering has been peeled off.

Mishandling of batteries can cause electrolyte leakage which can damage items the fluid contacts and may cause a fire.

Remove the batteries if the remote control is not going to be used for a long period of time. Store in a cool, dark place.

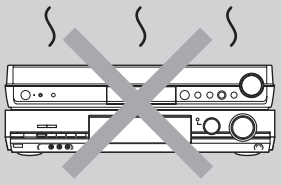
■ Use

Remote control signal sensor:
Receives signals within a vertical radius of approximately 20 degrees, and a horizontal radius of approximately 60 degrees.



7 m directly in front of the unit

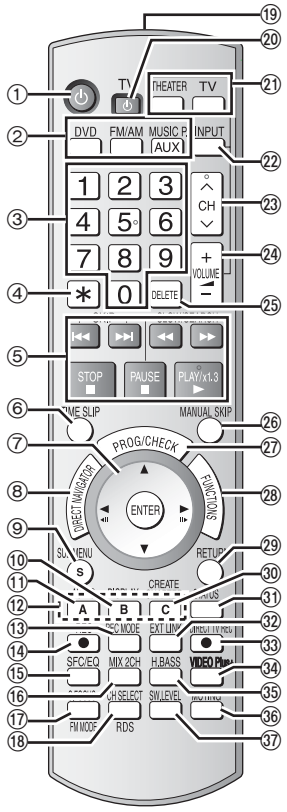
Do not place the unit on amplifiers or equipment that may become hot.
The heat can damage the unit.



Before moving the unit, ensure the disc tray is empty. Failure to do so will risk severely damaging the disc and the unit.

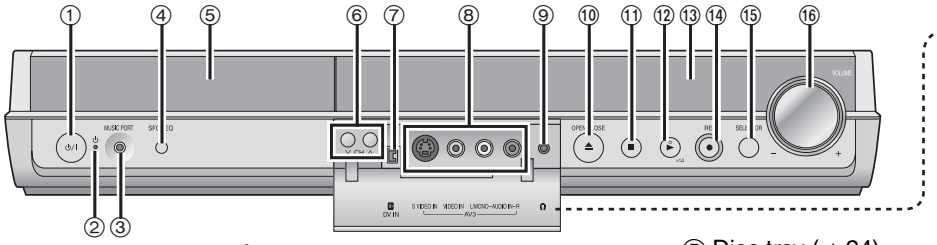
- For your safety, be sure not to connect or handle the equipment with wet hands.
- Your attention is drawn to the fact that the recording pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

Remote control



① Turn the unit on
② Select the source
DVD, FM/AM, AUX/F MUSICP
③ Select channels and title numbers, etc./ Enter numbers
④ Cancel
⑤ Basic operations for recording and play
⑥ Skip the specified time(➡ 31)
⑦ Selection (▲, ▼, ◀, ▶)/Enter, Frame-by-frame (◀❚❚, ❚❚▶)(➡ 31)
⑧ Show Direct Navigator/Top menu (➡ 30, 32, 38)
⑨ Show sub menu (➡ 38)
⑩ Show on-screen menu (➡ 35)
⑪ Select audio (➡ 30)
⑫ Manual tuning operation (➡ 53)
⑬ Change recording mode (➡ 24)
⑭ Start recording (➡ 24)
⑮ Change the sound quality (➡ 48)
⑯ MIX 2CH **RT30** Down-mix signals to 2 channels (➡ 49)
SRD ENH **RT70** Enhance surround sound (➡ 48)
⑰ Enhance the sound from the center speaker (➡ 48)/ Change radio reception mode (➡ 47)
⑱ Select speaker channels (➡ 49)/RDS (➡ 47)
⑲ Remote control signal output
⑳ Turn on the television
㉑ **Switches the remote control operation between the unit and the TV. Press [THEATER] when operating this unit, or press [TV] when operating the television.**
㉒ Input select (AV1, AV2, AV3 or DV)
㉓ Channel select (➡ 24)
㉔ Adjust the volume
㉕ Delete items (➡ 37)
㉖ Skip 30 seconds forward (➡ 31)
㉗ Show timer recording programme list (➡ 27)
㉘ Show FUNCTIONS window (➡ 36)
㉙ Return to previous screen
㉚ Create chapters (➡ 31)
㉛ Show status messages (➡ 33, 36)
㉜ Linked timer recordings with external equipment (➡ 29)
㉝ Direct TV recording (➡ 57)
㉞ Show VIDEO Plus+ screen (➡ 26)
㉟ Enhance the bass sound (➡ 48)
㊱ Muting (➡ 49)
㊲ SW.LEVEL **RT30** Adjust the subwoofer level (➡ 49)
SW.LEVEL / MIX 2CH **RT70** Adjust the subwoofer level (➡ 49)/ Down-mix signals to 2 channels (➡ 49)

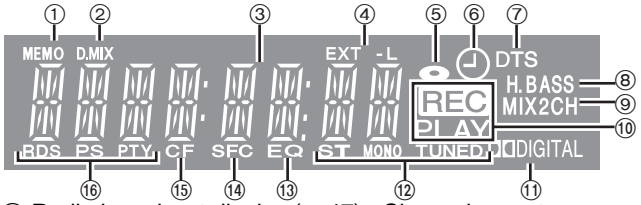
This unit



Opening the front panel
Press down the ••• part with your finger.

① **Standby/on switch** (⏻/I)
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power. To save power, unplug it from the household mains socket.
② **Standby/on indicator** (⏻)
When the unit is connected to the AC mains supply, this indicator lights up in standby mode and goes out when the unit is turned on.
③ Connector for an external device (➡ 56)
④ SFC / EQ ○ **RT30** Change the sound quality (➡ 48)
SURROUND ENHANCER ○— **RT70** Enhance surround sound/SURROUND ENHANCER indicator (➡ 48)
⑤ Disc tray (➡ 24)
⑥ Channel select (➡ 24)
⑦ Connector for a digital video (DV) camcorder (➡ 42)
⑧ Connector for external equipment (➡ 42)
⑨ Connector for headphones (➡ 56)
⑩ Open/close disc tray (➡ 24)
⑪ Stop (➡ 24, 30)
⑫ Start play (➡ 30)
⑬ Display (➡ below)
⑭ Start recording (➡ 24)/Specify the time to stop recording (➡ 25)
⑮ Select the source
DVD→FM→AM→AUX→F MUSICP→Return to DVD
⑯ Turn up/down the volume

The unit's display



① Radio broadcast display (➡ 47) : Channel preset memory indicator
② D.MIX indicator (➡ 49)
③ Main display section
④ Linked timer recordings with external equipment indicator (➡ 29)
⑤ Disc indicator
This indicator lights up when a disc that is supported by this unit is inserted.
⑥ Timer recording indicator (➡ 26)
⑦ DTS indicator (➡ 49)
⑧ H.BASS indicator (➡ 48)
⑨ MIX2CH indicator (➡ 49)
⑩ Rec/Play indicator (➡ 24, 30)
⑪ Dolby Digital indicator (➡ 49)
⑫ Radio broadcast display (➡ 46, 47)
TUNED : Receiving radio signal/ST : Stereo/ MONO : Monaural
⑬ Equalizer indicator (➡ 48)
⑭ Sound field control indicator (➡ 48)
⑮ Center Focus indicator (➡ 48)
⑯ Radio broadcast display (➡ 47)
RDS: Receiving RDS (Radio Data System) signal
PS: Programme station indicator
PTY: Programme type indicator

Discs you can use for recording and play

Disc type	DVD-RAM	DVD-R	DVD-R DL※1 (dual layer on single side)	DVD-RW	+R※2	+R DL※1 (double layer on single side)	+RW
Indication in these instructions	RAM	-R Before finalization / DVD-V After finalization	-R DL Before finalization / DVD-V After finalization	-RW(V) Before finalization / DVD-V After finalization	+R Before finalization / DVD-V After finalization	+R DL Before finalization / DVD-V After finalization	+RW
Logo	DVD RAM RAM4.7	DVD R R4.7	DVD R R DL	DVD RW	——	——	——
Recording format (➡ below)	VR	DVD-Video	DVD-Video	DVD-Video	+VR	+VR	+VR
Re-writable※3	✓	×	×	✓	×	×	✓
What you can do on this unit							
Recording broadcasts that allow one copy	✓※4	×	×	×	×	×	×
Recording both M 1 and M 2 of bilingual broadcasts	✓	×	×	×	×	×	×
Recording 16:9 aspect picture	✓	×	×	×	×	×	×
Creating playlists	✓	×	×	×	×	×	×
Compatibility							
Usable high speed recording disc type※5	Up to 5x	Up to 16x	Up to 4x	Up to 6x	Up to 16x	Up to 2.4x	Up to 4x※6
Play on other players	Only on DVD-RAM compatible players. (It is not possible to finalize the disc.)	✓	✓※7	✓	✓	✓※8	✓ (It is not possible to finalize the disc.)
		Only on compatible players after finalizing the disc (➡ 45)					

✓: Can do, ×: Cannot do

- We recommend using Panasonic discs. We also recommend using DVD-RAM discs with cartridges to protect them from scratches and dirt.
- You may not be able to record depending on the condition of the discs and you may not be able to play due to the condition of the recording.
- For the recording time, refer to “Recording modes and approximate recording times” on page 23.
- You cannot record programmes that allow “One time only recording” to CPRM compatible DVD-R and DVD-RW on this unit. You can record other programmes as DVD-Video format.

※1 You cannot continue a recording from the first layer to the second layer on dual- or double-layer discs. To record onto the second layer, you must first close the first layer using the “Close First Layer” item in DVD Management (➡ 45). You will no longer be able to record to the first layer after you do this (➡ 22).
When playing a title recorded on both layers, video and audio may momentarily cut out when the unit is switching layers.
※2 You may not be able to use +R recorded on this unit in another Panasonic DVD recorder and vice versa. Once the disc is finalized, however, it can be played in the other unit.
※3 The amount of the recordable disc space doesn’t increase even if the programme is deleted when you use a one time recording disc.
※4 CPRM (➡ 65) compatible discs only.
※5 This unit can use the high-speed recording discs shown in the chart, but using them will not shorten the recording time.
※6 You can play 8x recording speed discs recorded on another equipment.
※7 Play on DVD-R DL compatible equipment.
※8 Play on +R DL compatible equipment.

Regarding recording format

VR (DVD Video Recording) format
This is a recording method which allows you to freely record and edit television broadcasts and so on.
- Digital broadcasts that allow “One time only recording” can be recorded to a CPRM compatible disc. You can record to CPRM compatible DVD-RAM on this unit.
- Play is only possible on a compatible DVD player.

DVD-Video format
This recording method is the same as commercially available DVD-Video.
- Digital broadcasts that allow “One time only recording” cannot be recorded.
- You can play on compatible equipment such as DVD players after finalizing the disc on this unit.

+VR (+R/+RW Video Recording) format
This is a method for recording moving pictures to +R/+RW discs. You can play back such discs recorded in this method in a similar way as contents recorded in the DVD-Video format.
- Digital broadcast that allow “One time only recording” cannot be recorded.
- After finalizing the disc or creating the top menu, you can play the disc on DVD players and other equipment.

Play-only discs

Disc type	DVD-Video	DVD-Audio	DVD-RW (VR format)
Indication in these instructions	DVD-V	DVD-A	-RW(VR)
Logo	DVD VIDEO DVD VIDEO	DVD AUDIO	DVD RW
Instructions	High quality movie and music discs	High fidelity music discs	DVD-RW recorded on another DVD Recorder※1 ●You can play programmes that allow “One time only recording” if they have been recorded to a CPRM compatible disc. ●By formatting (➡ 44) the disc, you can record to it in DVD-Video format. ●It may be necessary to finalize the disc on the equipment used for recording.

Disc type	Audio CD	Video CD	SVCD※2	DVD-R		CD	
Indication in these instructions	CD	VCD		MP3	JPEG	MP3	JPEG
Logo	COMPACT disc DIGITAL AUDIO	COMPACT disc DIGITAL VIDEO	COMPACT disc SUPER VIDEO	DVD R R4.7		——	
Instructions	Music and audio recorded (including CD-R/RW※1)	Music and video recorded (including CD-R/RW※1)		CD-R/RW and DVD-R※1 with MP3/Still pictures (JPEG and TIFF)			

●The producer of the disc can control how discs are played. So you may not always be able to control play as described in these operating instructions. Read the disc’s instructions carefully.
●Operation and sound quality of CDs that do not conform to CD-DA specifications (copy control CDs, etc.) cannot be guaranteed.
※1 Close the session after recording. Play may be impossible on some discs due to the condition of the recording.
※2 Conforming to IEC62107.

Discs that cannot be played

●2.6 and 5.2 GB DVD-RAM, 12 cm
●3.95 and 4.7 GB DVD-R for Authoring
●DVD-R recorded in VR format
●DVD-R (DVD-Video format), DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL recorded on another unit and not finalized (➡ 65).
●DVD-Video with a region number other than “2” or “ALL”
●Blu-ray
●DVD-ROM, +R (8 cm), CD-ROM, CDV, CD-G, Photo CD, CVD, SACD, MV-Disc, PD, DivX Video Disc, “Chaoji VCD” available on the market including CVD, DVCD and SVCD that do not conform to IEC62107, etc.

Types of disc for the type of connected TV

When you use the discs recorded either PAL or NTSC, refer to this table.
(✓: Possible to view, ×: Impossible to view)

TV type	Disc	Yes/No
Multi-system TV	PAL	✓
	NTSC	✓※3
NTSC TV	PAL	×
	NTSC	✓※4
PAL TV	PAL	✓
	NTSC	✓※5 (PAL60)

※3 If you select “NTSC” in “TV System” (➡ 51), the picture may be clearer.
※4 Select “NTSC” in “TV System” (➡ 51).
※5 If your televison is not equipped to handle PAL 525/60 signals the picture will not be shown correctly.

The manufacturer accepts no responsibility and offers no compensation for loss of recorded or edited material due to a problem with the unit or recordable media, and accepts no responsibility and offers no compensation for any subsequent damage caused by such loss.
Examples of causes of such losses are
●A disc recorded and edited with this unit is played in a DVD Recorder or computer disc drive manufactured by another company.
●A disc used as described above and then played again in this unit.
●A disc recorded and edited with a DVD Recorder or computer disc drive manufactured by another company is played in this unit.

STEP 1 Front and surround speaker assembly RT70

Included parts to be used

2 Front and 2 Surround speakers (with cover plate)

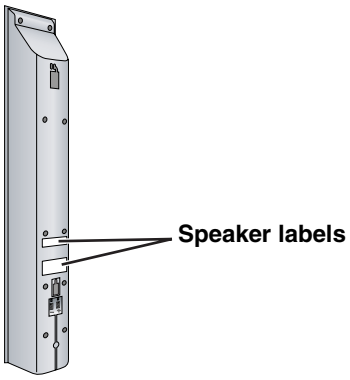
4 Stands
- 2× Stands with short cable: For front speakers
- 2× Stands with long cable: For surround speakers

4 Bases

16 Screws

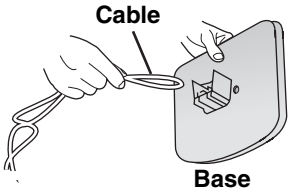
Preparation
- To prevent damage or scratches, lay down a soft cloth and perform assembly on it.
- For assembly, use Phillips-head and flathead screwdrivers.
- Make sure you have all the indicated components before starting assembly, positioning, and connection.
- **The front and surround speaker pairs as well as the stand pairs are different.**
  –Check the label on the rear of the front speaker before attaching the stand (➡ right).
  –The stand with the shorter cable is for the front speaker.
- For optional wall mount, refer to page 17.

Front speakers

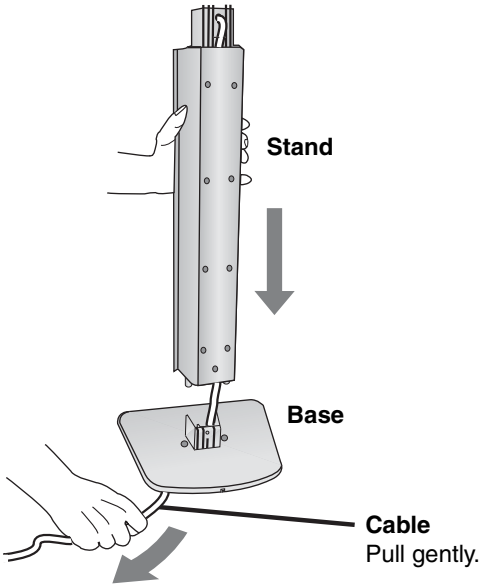


1 Attach the stand to the base.

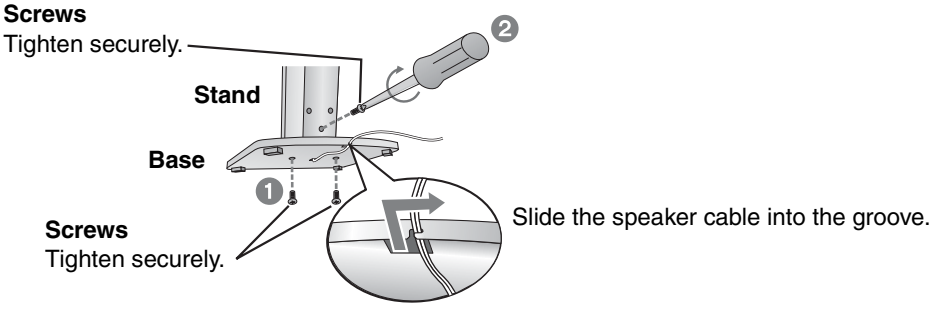
① **Thread the speaker cable through the base.**
For quicker threading, loosely fold the cable in half (do not crease), pass the folded portion through the hole, and then pull the rest of the cable through the base.



② **Attach the stand to the base while gently pulling on the end of the speaker cable.**

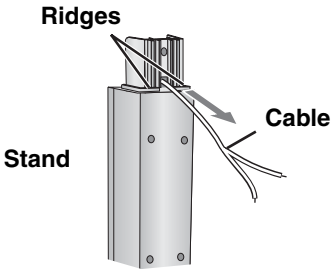


2 Secure the stand to the base.

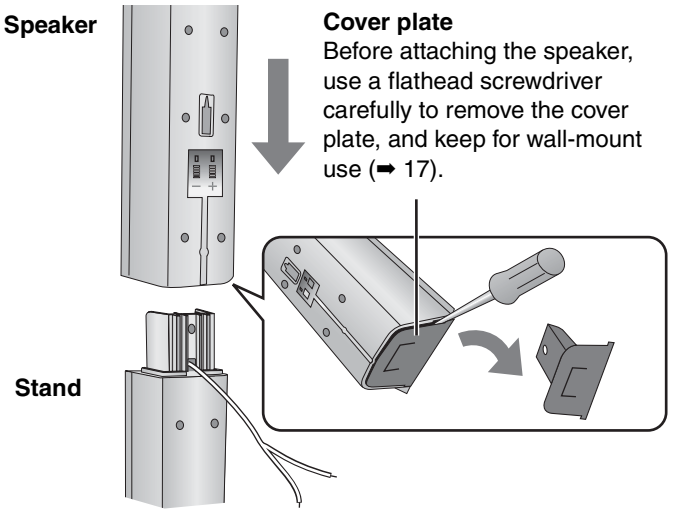


3 Attach the speaker to the stand.

① Pull out the end of the speaker cable and position it between the ridges.

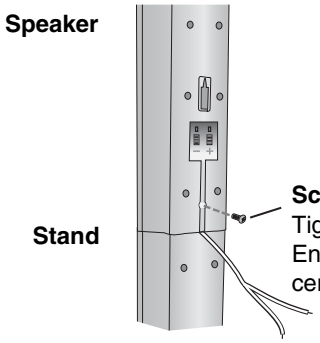


② Attach the speaker to the stand.



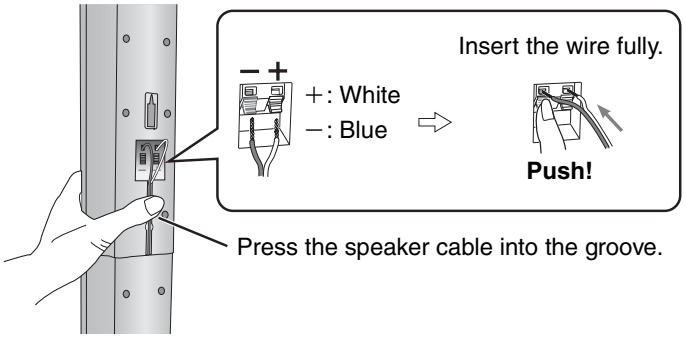
Cover plate
Before attaching the speaker, use a flathead screwdriver carefully to remove the cover plate, and keep for wall-mount use (➡ 17).

4 Secure the speaker to the stand.



Screw
Tighten securely.
Ensure the speaker cable is centered in the groove.

5 Connect the speaker cable.

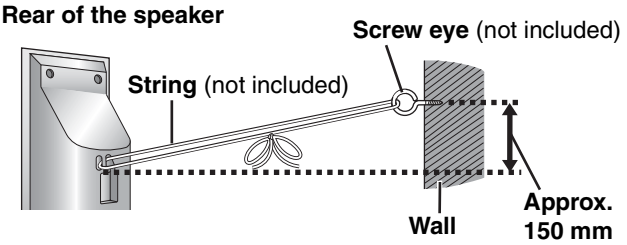


Preventing the front and surround speakers from falling over

Preparation
Attach screw eyes (not included) to secure the speakers to the wall (➡ diagram right).

- You will need to obtain the appropriate screw eyes to match the walls or pillars to which they are going to be fastened.
- The walls or pillars to which the screw eyes are going to be fastened should be capable of supporting 20 kg. Consult a qualified housing contractor concerning the appropriate procedure when attaching to a concrete wall or a surface that may not have strong enough support. Improper attachment may result in damage to the wall or speakers.

To prevent the speaker from falling over, thread the string (not included) from the wall to the speaker as shown and tie tightly.



STEP 2 Positioning and connection of speakers

Included parts to be used

2 Sheets of speaker cable stickers

2 Speaker cables RT70

1 Place the speakers.

Preparation RT70
Check to make sure the screws on the front and surround speakers are not loose.

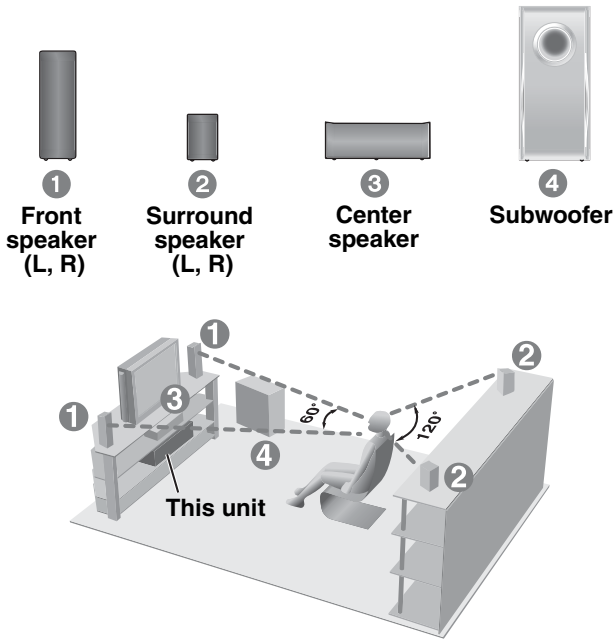
Positioning for best effect
How you set up your speakers can affect the bass and the sound field.
Note the following points:
- **Place the front, center, and surround speakers at approximately the same distance from the seating position.**
  The angles in the diagram below are approximate.
- Place speakers on flat secure bases.
- Placing speakers too close to floors, walls, and corners can result in excessive bass. Cover walls and windows with thick curtains.

Use only supplied speakers
Using other speakers can damage the unit and sound quality will be negatively affected.

Note
- Set the speakers up on an even surface to prevent them from falling.
  Take proper precautions to prevent the speakers from falling over if you cannot set them up on an even surface.
- Left and right speakers are interchangeable, but front and surround speakers are not.

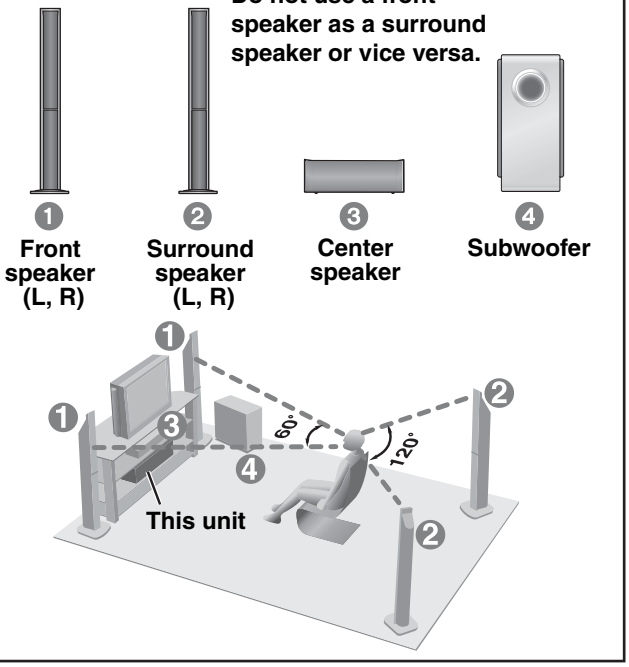
Connect the supplied speakers and subwoofer to this unit only. Do not attempt to connect the supplied speakers and subwoofer to the external amplifier and so on.

RT30



RT70

Do not use a front speaker as a surround speaker or vice versa.



This unit

Note
- Keep your speakers at least 10 mm away from this unit for proper ventilation.
- To allow for proper ventilation and to maintain good airflow around this unit, position it with enough space on all sides.
- Do not block the ventilation holes of this unit.
- Do not set anything on top of this unit.

Subwoofer
Place to the right or left of the television on the floor so that it won't cause vibration.
Leave about 30 cm from the television.

Center speaker
- Vibration caused by the center speaker can disrupt the picture if it is placed directly on the television.
  Put the center speaker on a rack or shelf.
- To prevent the speaker from falling, do not place the speaker directly on top of the television.

Caution
- **This unit and supplied speakers are only to be used as indicated in this setup. Failure to do so may lead to damage to the amplifier and/or the speakers, and may result in the risk of fire. Consult a qualified service person if damage has occurred or if you experience a sudden change in performance.**
- **Do not attempt to attach these speakers to walls using methods other than those described in this manual.**

2 Connect the speaker cables.

1 **Attach the speaker cable stickers (included) to speaker cables to make connection easier.**

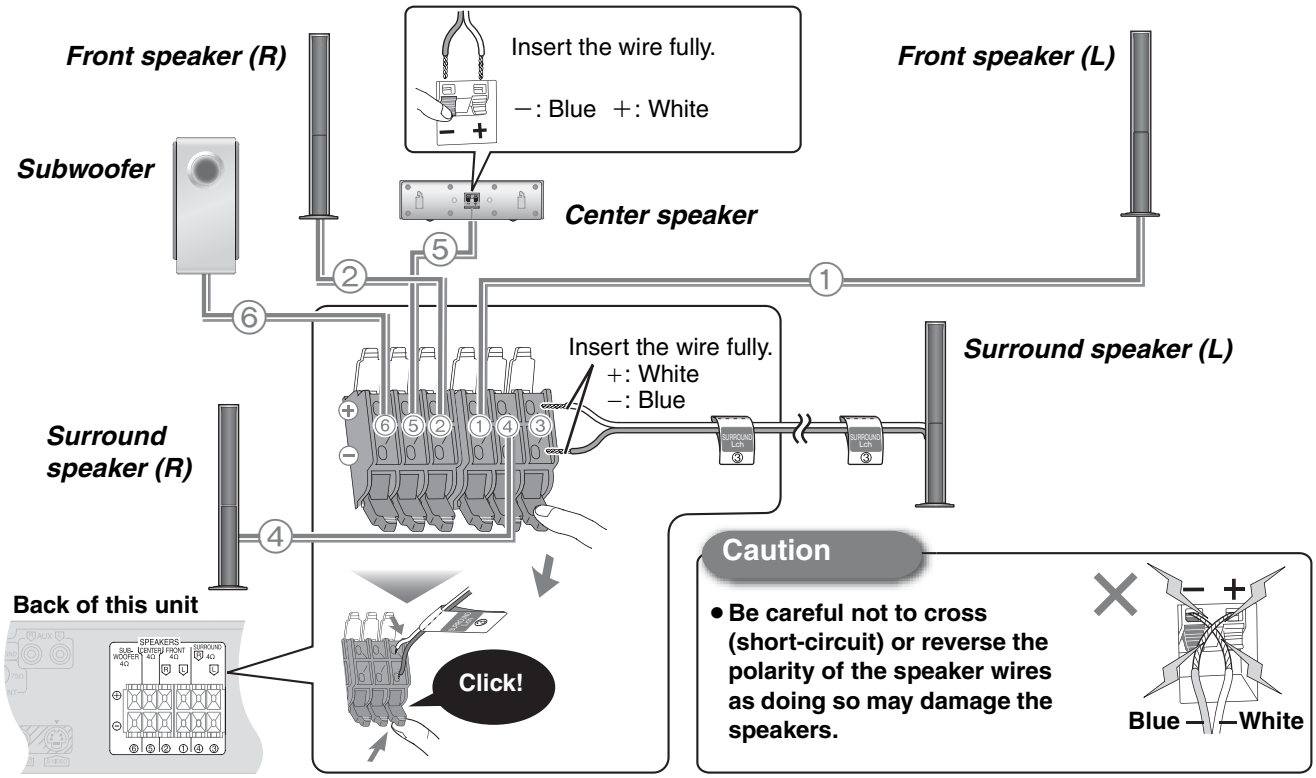
e.g. RT70 Center speaker

Speaker cable sticker

2 **Insert the speaker cables into the terminals in accordance with the stickers you just attached and the diagram below.**

RT30 All speaker cables are fixed to the back of the speakers from the time of shipment. You only need to connect the speaker cables to the terminal on this unit.
The illustration shows SC-RT70, but this connection method is also used for SC-RT30.

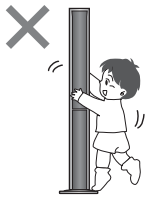
RT70 The front and surround speaker cables were connected to the back of the speakers in step 1 (➡ 9). Connect the supplied speaker cables to the center speaker and subwoofer, and then connect all the speaker cables to this unit.



Caution

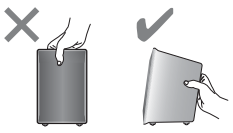
- Do not stand on the base. Be cautious when children are near.

RT70 Front and surround speakers



- Do not touch the netted area of the speakers.

e.g. RT30 Surround speakers



Notes on speaker use

- You can damage your speakers and shorten their useful life if you play sound at high levels over extended periods.
- Reduce the volume in the following cases to avoid damage:
  - –When playing distorted sound.
  - –When the speakers are reverberating due to a record player, noise from FM broadcasts, or continuous signals from an oscillator, test disc, or electronic instrument.
  - –When adjusting the sound quality.
  - –When turning the unit on or off.

If irregular colouring occurs on your television

The front and center speakers are designed to be used close to a television, but the picture may be affected with some televisions and setup combinations.

If this occurs, turn the television off for about 30 minutes.

The television's demagnetizing function should correct the problem. If it persists, move the speakers further away from the television.

STEP 3 Video connections

Included parts to be used

2 RF coaxial leads (black)

1 RF coaxial lead (grey)

This unit

Use the supplied RF coaxial leads

To prevent interference patterns from appearing on your TV, use only the supplied RF coaxial leads when you connect this unit to your TV and aerial outlet or aerial lead, as shown in connection types A–C.

- Keep the RF coaxial leads as far away as possible from other leads.
- Do not roll up the RF coaxial leads.

- **Before connection, turn off the mains for all connected equipment and read the appropriate operating instructions.**
- **Choose from one of the connection types A–C that suits your requirement.**

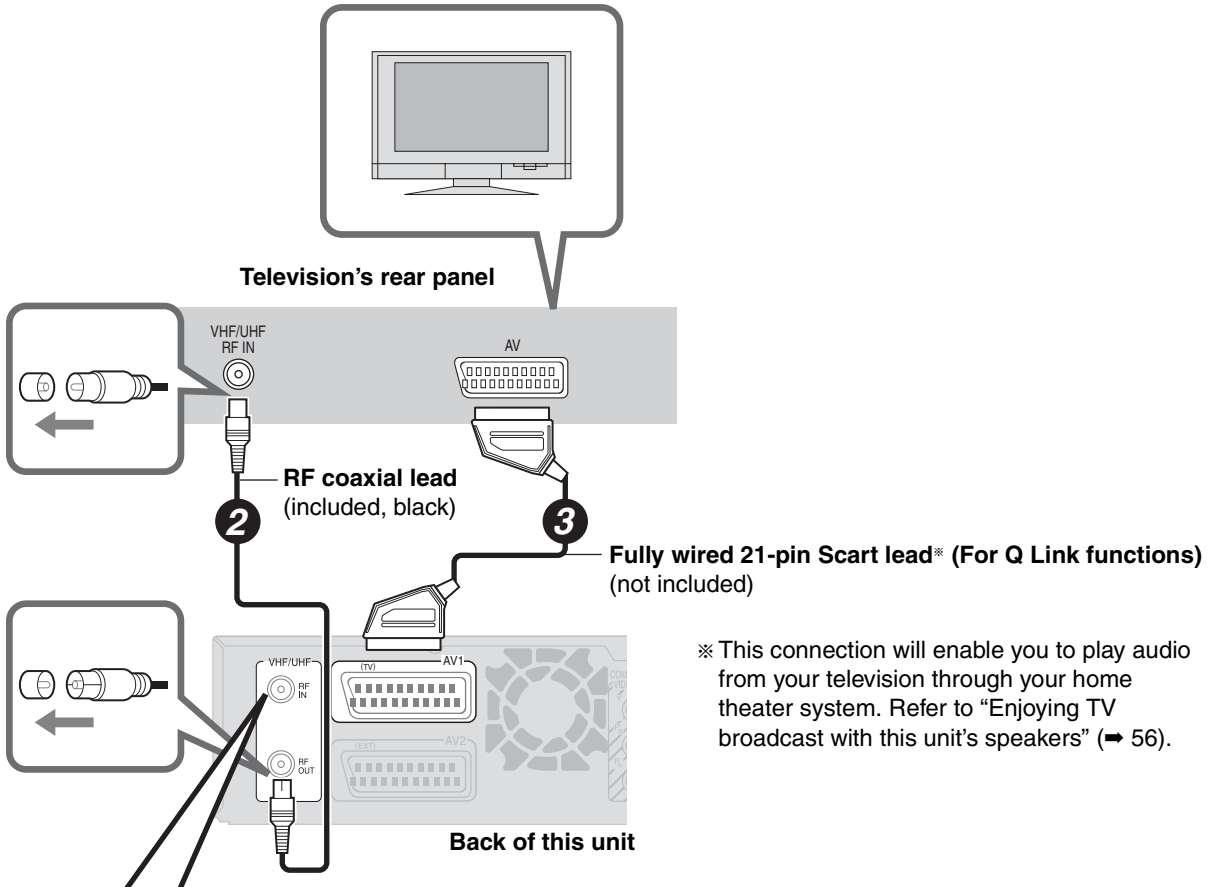
A Connecting to a television only

Using a fully wired 21-pin Scart lead

- You can use a variety of Q Link functions by connecting the unit to a Q Link compatible television (➡ 57).
- You can enjoy high-quality viewing by connecting the unit to an RGB compatible television.

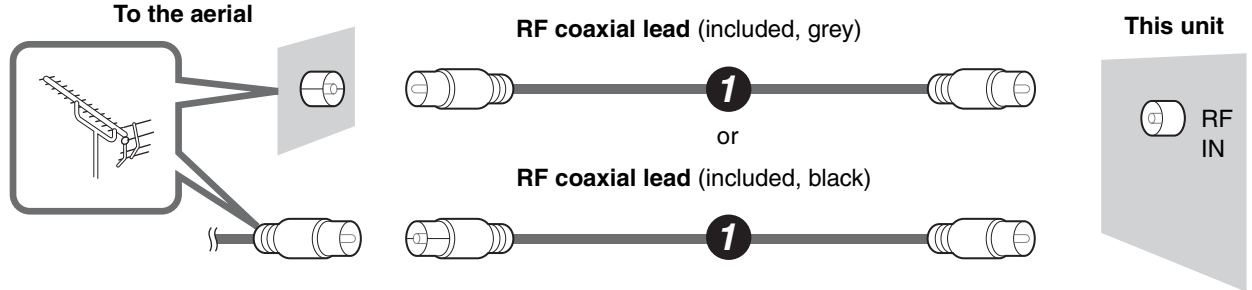
Required setting

"AV1 Output" in the Setup menu (➡ 51)



※ This connection will enable you to play audio from your television through your home theater system. Refer to "Enjoying TV broadcast with this unit's speakers" (➡ 56).

Use one of the RF coaxial lead (black or grey) to connect this unit's RF IN terminal to your aerial socket or aerial lead.



Connecting a terminal other than the 21-pin Scart terminal (➡ 15).

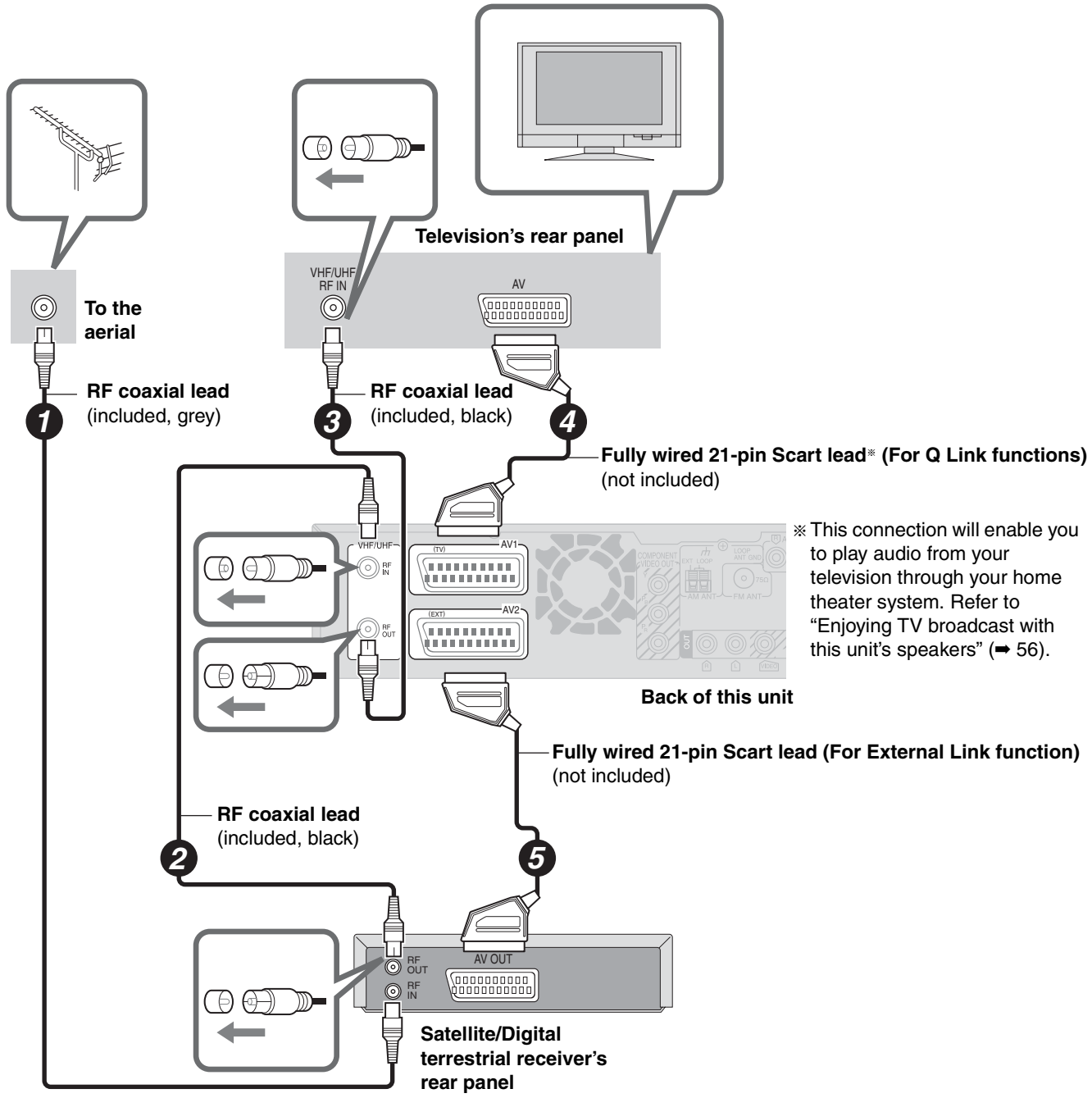
B Connecting to a television and Satellite/Digital terrestrial receiver

Using a fully wired 21-pin Scart lead

- You can use a variety of Q Link functions by connecting the unit to a Q Link compatible television (➡ 57).
- You can enjoy high-quality viewing by connecting the unit to an RGB compatible television.

Required setting

"AV1 Output" and "AV2 Input" in the Setup menu (➡ 51)


Television's rear panel
VHF/UHF RF IN
AV
To the aerial
RF coaxial lead (included, grey)
RF coaxial lead (included, black)
Fully wired 21-pin Scart lead※ (For Q Link functions) (not included)
※ This connection will enable you to play audio from your television through your home theater system. Refer to "Enjoying TV broadcast with this unit's speakers" (➡ 56).
Back of this unit
Fully wired 21-pin Scart lead (For External Link function) (not included)
RF coaxial lead (included, black)
AV OUT
Satellite/Digital terrestrial receiver's rear panel

To view satellite/digital terrestrial programmes

Press [INPUT] to select the input channel "AV2" or put this unit in standby mode.

To record satellite/digital terrestrial programmes

Refer to "Recording from a satellite/digital terrestrial receiver" (➡ 29).

Connecting a terminal other than the 21-pin Scart terminal (➡ 15).

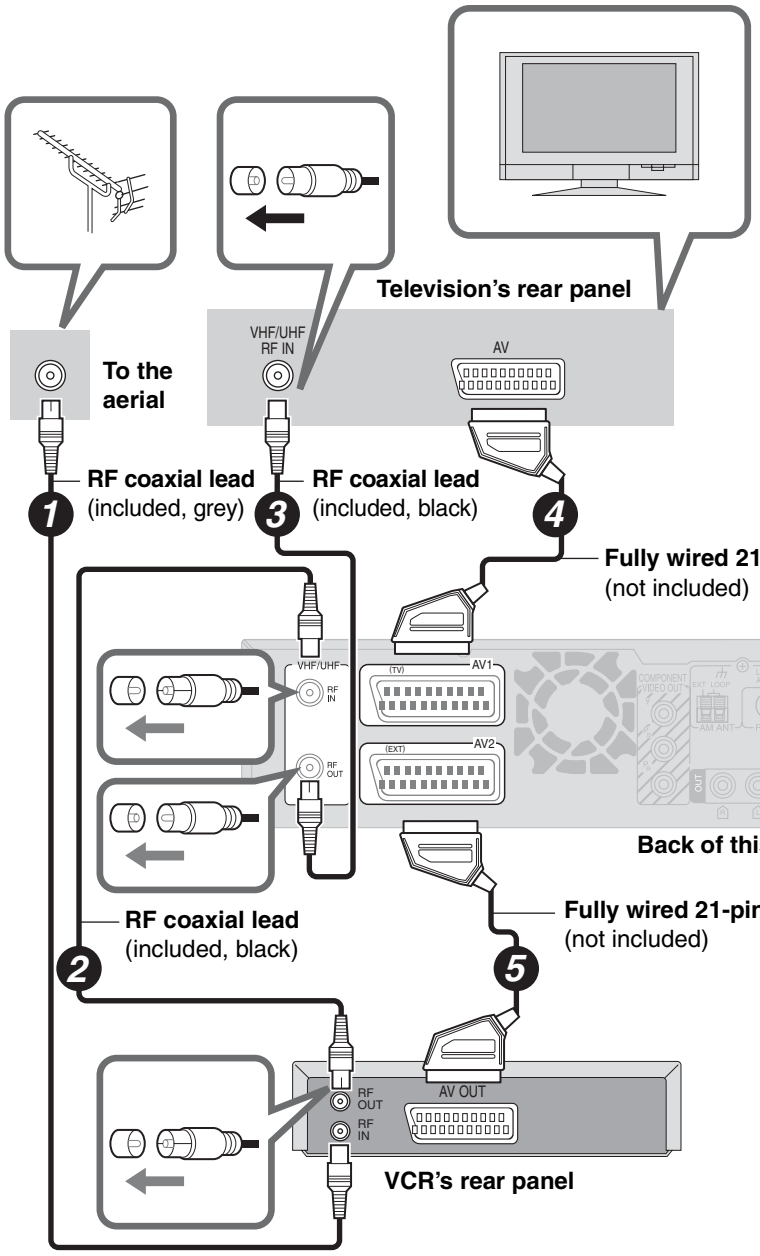
C Connecting to a television and VCR

Using a fully wired 21-pin Scart lead

- You can use a variety of Q Link functions by connecting the unit to a Q Link compatible television (➡ 57).
- You can enjoy high-quality viewing by connecting the unit to an RGB compatible television.

Required setting

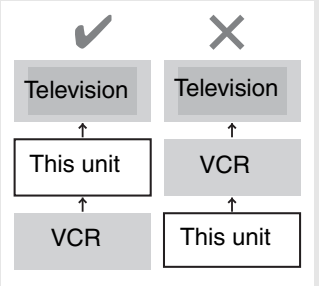
"AV1 Output" and "AV2 Input" in the Setup menu (➡ 51)



※ This connection will enable you to play audio from your television through your home theater system. Refer to "Enjoying TV broadcast with this unit's speakers" (➡ 56).

Connect the unit directly to the television

Video signals fed through video cassette recorders will be affected by copyright protection systems and the picture will not be shown correctly on the television.



To copy from a VCR

Refer to "Copying from a video cassette recorder" (➡ 42).

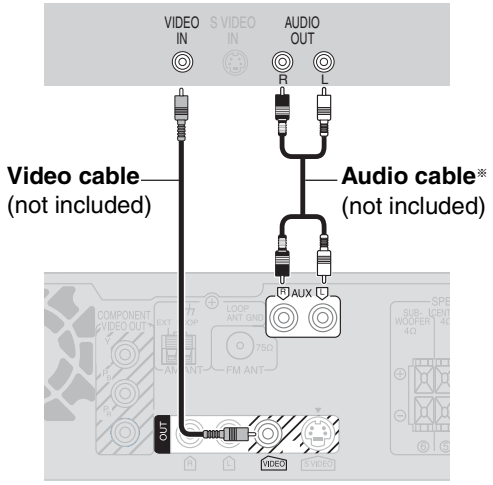
Connecting a terminal other than the 21-pin Scart terminal (➡ 15).

In the patterns “A”–”C” (➡ 12–14), you can also connect this unit and TV with the VIDEO OUT, S VIDEO OUT, and COMPONENT VIDEO OUT terminals instead of connecting with a fully wired 21-pin Scart cable.

Other connections

Connecting to a television with VIDEO terminal

Television’s rear panel



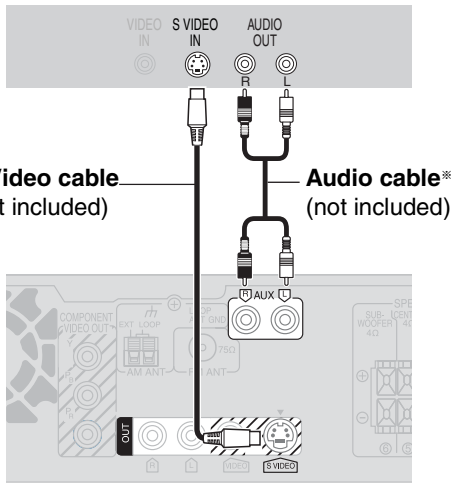
Back of this unit

※ This audio connection will enable you to play audio from your television through your home theater system. Refer to “Enjoying TV broadcast with this unit’s speakers” (➡ 56).

Connecting to a television with S VIDEO terminal

The S VIDEO OUT terminal achieves a more vivid picture than the VIDEO OUT terminal. (Actual results depend on the television.)

Television’s rear panel

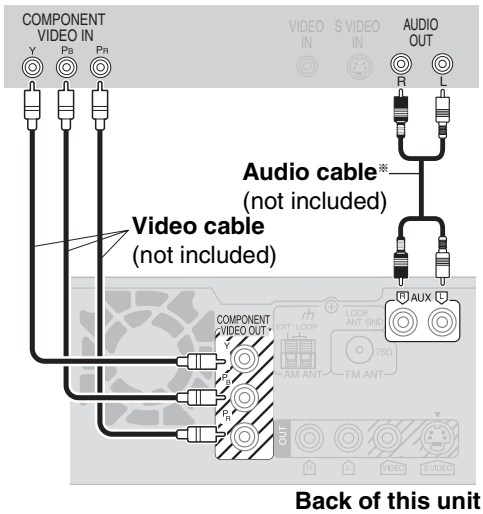


Back of this unit

※ This audio connection will enable you to play audio from your television through your home theater system. Refer to “Enjoying TV broadcast with this unit’s speakers” (➡ 56).

Connecting to a television with COMPONENT VIDEO terminal

Television’s rear panel



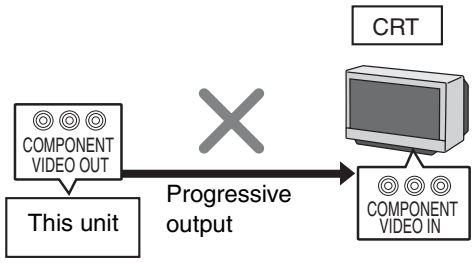
Back of this unit

※ This audio connection will enable you to play audio from your television through your home theater system. Refer to “Enjoying TV broadcast with this unit’s speakers” (➡ 56).

COMPONENT VIDEO terminals can be used for either interlace or progressive output (➡ 65) and provide a purer picture than the S VIDEO OUT terminal.

- Connect to terminals of the same colour.

If you have a regular television (CRT: cathode ray tube)
Use component output with progressive “Off” (Factory setting ➡ 51), even if it is progressive compatible, because progressive output can cause some flickering. This is the same for multi system televisions using PAL mode.

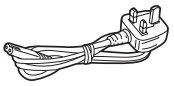


STEP 4 Radio and AC mains lead connections

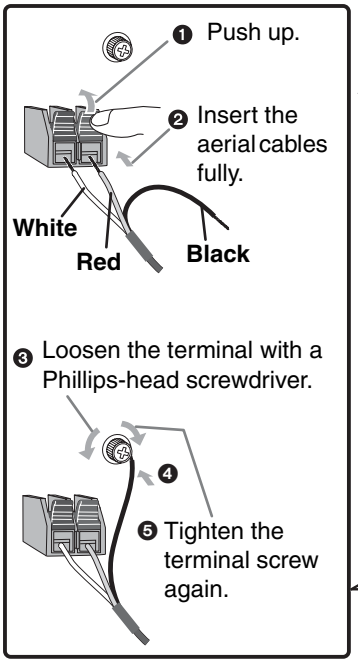
Included parts to be used

AM loop aerial

FM indoor aerial

AC mains lead 

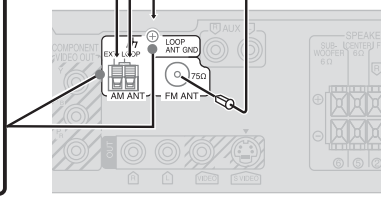
1 Connect the aerials.



AM loop aerial
Stand the aerial up on its base.
Place the aerial where reception is best.
Keep loose aerial cable away from other wires and cables.

FM indoor aerial
Affix this end of the aerial where reception is best.
Use FM outdoor aerial if radio reception is poor (➡ 47).

Adhesive tape

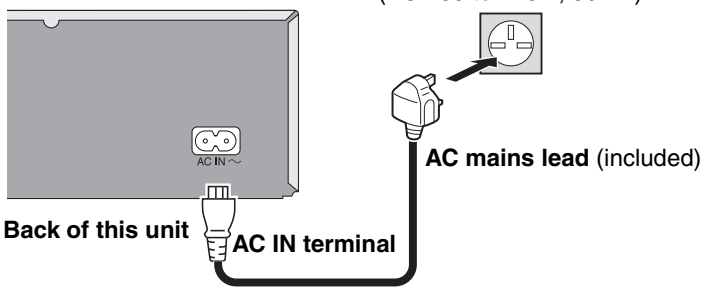


Back of this unit

2 Connect the AC mains lead.

BE SURE TO READ THE CAUTION FOR THE AC MAINS LEAD ON PAGE 2 BEFORE CONNECTION.

To household mains socket
(AC 230 to 240 V, 50 Hz)



AC mains lead (included)

Back of this unit

AC IN terminal

Conserving power
This unit consumes a small amount of power, even when it is turned off. To save power when the unit is not to be used for a long time, unplug it from the household mains socket.
Set the unit to standby mode and remove the AC mains lead after "BYE" disappears from the unit's display.
- You will need to reset some memory items in the unit after plugging.

Note
The included AC mains lead is for use with this unit only. Do not use it with other equipment. Also, do not use cords for other equipment with this unit.

Attaching to a wall

You can attach all of the speakers (except subwoofer) to a wall.

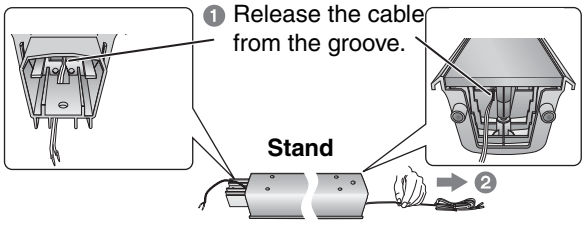
- The wall or pillar on which the speakers are to be attached should be capable of supporting 10 kg per screw. Consult a qualified building contractor when attaching the speakers to a wall. Improper attachment may result in damage to the wall and speakers.

RT70

When mounting the front and surround speakers to a wall, we recommend using a string (not included) to prevent it from falling (➡ 9).

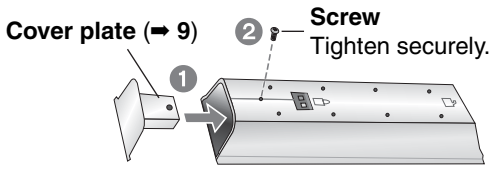
RT70 Preparation for the front and surround speakers

1 Removing the speaker cable from the stand.



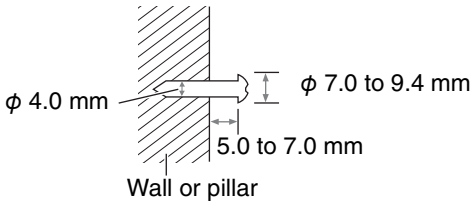
2 Attach the cover plate to the speaker.

The speakers are shipped with the cover plate attached.



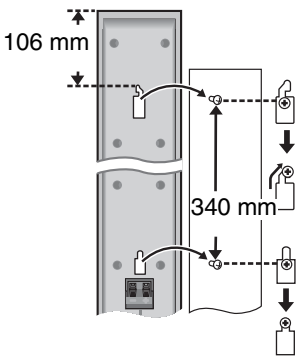
3 Connect the speaker cable. (➡ 9)

① Drive a screw (not included) into the wall.

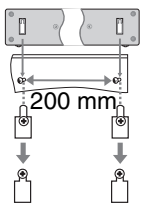


② Fit the speaker securely onto the screw(s) with the hole(s).

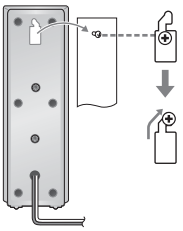
e.g. **Front and surround speakers RT70**



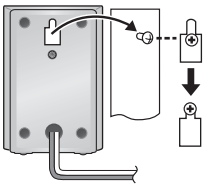
Center speaker



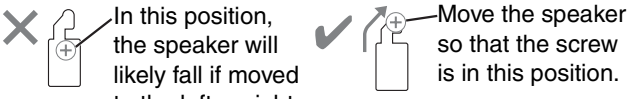
Front speaker RT30



Surround speaker RT30

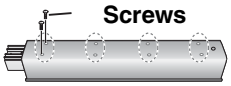


e.g.

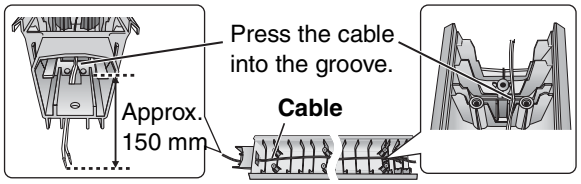

In this position, the speaker will likely fall if moved to the left or right.
Move the speaker so that the screw is in this position.

RT70 Reattaching the speaker cable to the stand

1 Remove the eight screws from the stand, and remove the speaker net.



2 Position the cable.



3 Attach the speaker net with the screws.

Fitting speaker stands (not included)

(Except RT70 Front and surround speakers)

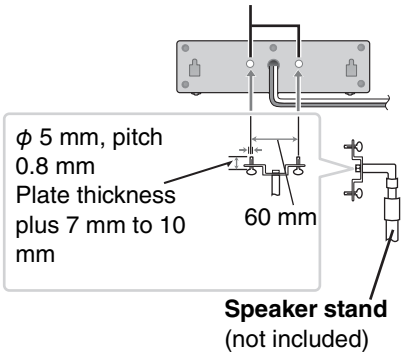
Ensure the stands meet these conditions before purchasing them.

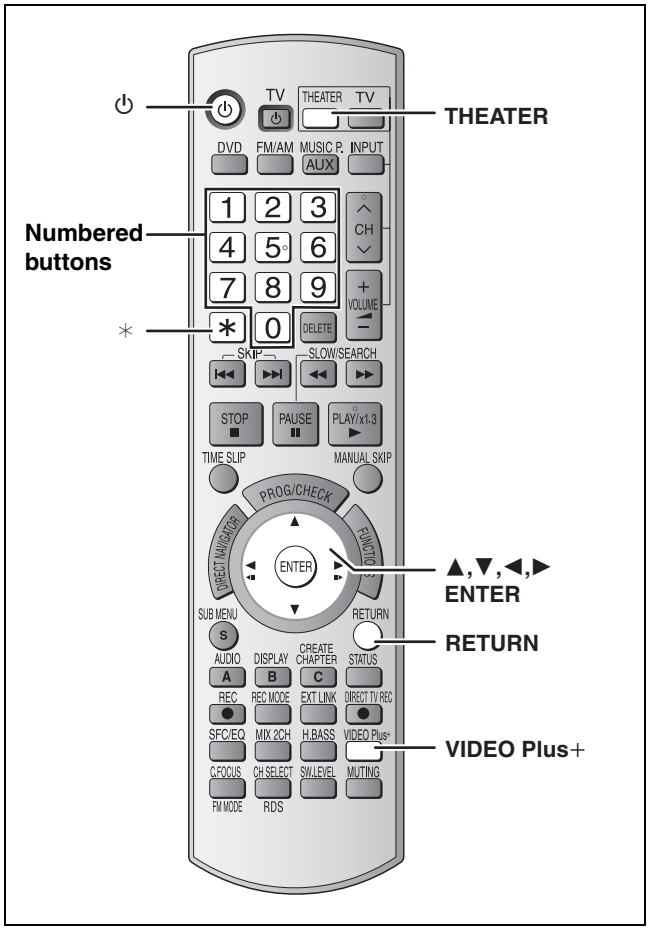
Note the diameter and length of the screws and the distance between screws as shown in the diagram.

- The stands must be able to support over 10 kg.
- The stands must be stable even if the speakers are in a high position.

e.g. **Center speaker RT30**

Attach the stands to these metal screw holes.





- After pressing [⏻] to turn the unit on for the first time, the unit starts necessary setup.
  If the setup screen does not appear, press [DVD], and turn off this unit and on again.

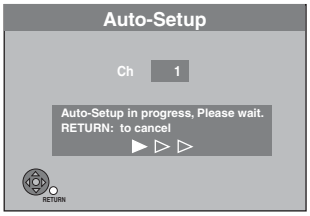
1 **Turn on the mains for the television (and connected equipment) and select the AV input for this unit.**

2 **Press [THEATER] to switch the remote control to operate this unit.**

3 **Press [⏻] to turn the unit on.**

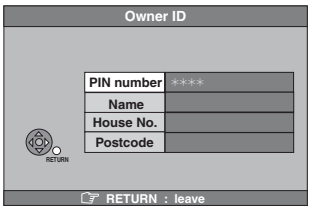
- **If the TV is Q Link compatible, it will start to download TV tuning information to this unit.**

- **If the TV is not Q Link compatible, Auto Setup will start to tune in all available TV stations. This may take about 5 minutes.**



4 **When setup has completed, the confirmation screen appears.**
Press [ENTER].

5 **The owner ID settings screen appears.**
Press [▶] and press the numbered buttons to enter your choice of a 4-digit PIN number.



Make a note of the PIN number (don't forget), as it is not possible to return to the factory preset.

6 **Press [ENTER] to store the PIN number.**

7 **Press [◀, ▶] to select "Yes" and press [ENTER].**
The cursor moves to "Name".

8 **Press [▶].**

9 **Press [▲, ▼] to select a letter and then press [▶] to move to next character.**
Repeat this to enter the name.

10 **Press [ENTER] to store the name.**

11 **Press [▼] and [▶], and then repeat steps 9, 10 to enter and store "House No." and "Postcode".**

12 **Press [RETURN].**
The Owner ID settings screen disappears.

To abort Auto Setup
Press [RETURN].

■ If the clock setting menu appears
Set the clock manually (➡ 55).

■ To confirm that stations have been tuned correctly (➡ 53)

■ Resetting channel setting (➡ 54)

■ To enter the satellite station's name (➡ 53)
The name of the satellite station may not be set automatically.
("____" will appear under "Name" in the programme list.)
In this case, enter the name manually.

Note
If this unit is connected to a digital TV (Freeview), only the analogue station's tuning information will be downloaded.

Timer recording from satellite receiver with VIDEO Plus+ system

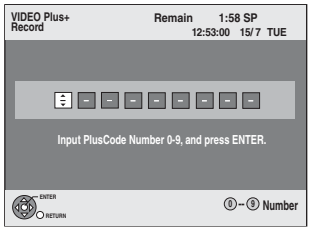
This unit is not designed to control (turn on or change channels on) your satellite receiver. However, you can use VIDEO Plus+ Recording by making the satellite receiver's PlusCode numbers available for recognition on this unit. Take the following steps to make all satellite stations available for recognition on this unit.

Through these steps, you can make timer recording from satellite stations with VIDEO Plus+ system constantly available as the unit keeps the setting in memory.

Preparation

- Turn on the Satellite receiver(s).
- Select a correct station on the Satellite receiver(s).

1 Press [VIDEO Plus+].



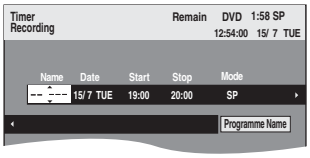
2 Press the numbered buttons to enter the VIDEO number for a satellite station (e.g. Sky One).

●To correct the number

Press [◄] to correct any mistakes.

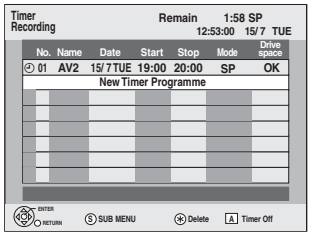
3 Press [ENTER].

"____" will appear in the "Name" column.



4 Press [▲, ▼] to select the channel or AV input that is to be used for recording from the satellite station.

5 Press [ENTER].



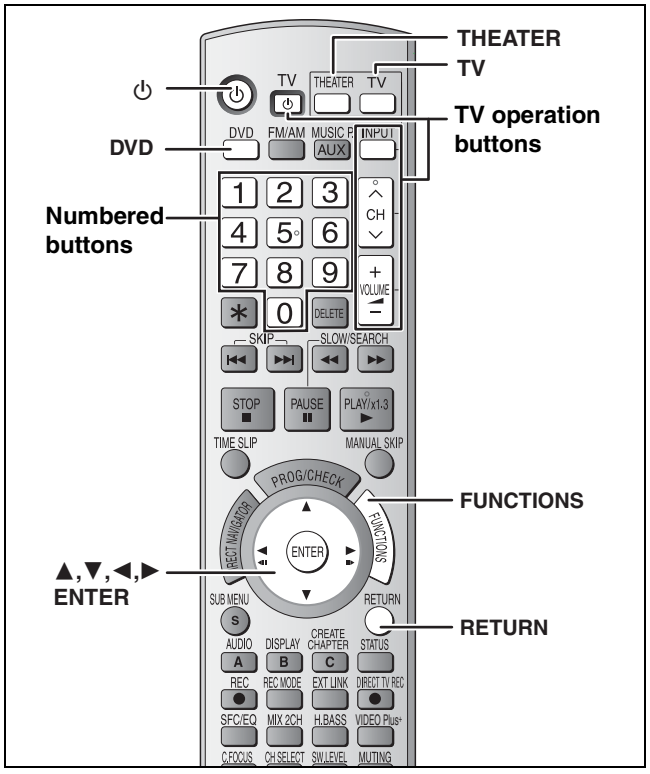
6 Press [▲, ▼] to select the programme that you have just set and press [✳] to delete it from the timer recording list.

It is no longer needed.

Repeat the steps above until you have set dummy timer recordings for each of the satellite stations that you will make VIDEO Plus+ recordings from.

To exit the screen

Press [RETURN].



Preparation

- **Turn on the mains for the television (and connected equipment) and select the AV input for this unit.**
- **Press [THEATER] to switch the remote control to operate this unit.**
- **Press [⏻] to turn the unit on.**
- **Press [DVD] to select the DVD drive.**

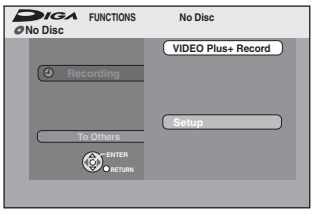
Selecting television type and aspect

Choose the setting to suit your television and preference.

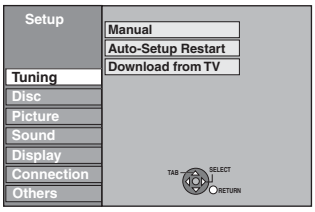
1 **While stopped**

Press [FUNCTIONS].

2 **Press [▲, ▼] to select “To Others” and press [ENTER].**



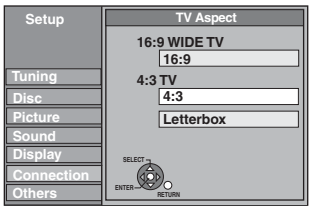
3 **Press [▲, ▼] to select “Setup” and press [ENTER].**



4 **Press [▲, ▼] to select “Connection” and press [►].**

5 **Press [▲, ▼] to select “TV Aspect” and press [ENTER].**

6 **Press [▲, ▼] to select the TV aspect and press [ENTER].**



- **16:9:** 16:9 widescreen television
- **4:3:** 4:3 standard aspect television

  RAM Even if it records and plays, the aspect does not change.

  DVD-V Video recorded for a widescreen is played as Pan & Scan (unless prohibited by the producer of the disc) (➡ 65).
- **Letterbox:** 4:3 standard aspect television

  Widescreen picture is shown in the letterbox style (➡ 65).

To enjoy progressive video

You can enjoy progressive video by connecting this unit’s COMPONENT VIDEO OUT terminals to an LCD/plasma television or LCD projector compatible with progressive scan (➡ 65).

1 **While stopped**

Press [FUNCTIONS].

2 **Press [▲, ▼] to select “To Others” and press [ENTER].**

3 **Press [▲, ▼] to select “Setup” and press [ENTER].**

4 **Press [▲, ▼] to select “Connection” and press [►].**

5 **Press [▲, ▼] to select “AV1 Output” and press [ENTER].**

6 **Press [▲, ▼] to select “Video (with component)” or “S Video (with component)” and press [ENTER].**

Set according to the signal and terminal of the connected TV.

7 **Press [▲, ▼] to select “Progressive” and press [ENTER].**

8 **Press [▲, ▼] to select “On” and press [ENTER].**

Output becomes progressive.

Note

- When connected to a regular television (CRT: Cathode ray tube) or a multi system television using PAL mode, even if it is progressive compatible, progressive output can cause some flickering. Turn off “Progressive” if this occurs.
- Picture will not be displayed correctly if connected to an incompatible television.
- There is no output from the COMPONENT VIDEO OUT terminals if “AV1 Output” in the Setup menu is set to “RGB 1 (without component)” or “RGB 2 (without component)” (➡ 51).

To return to the previous screen

Press [RETURN].

To exit the screen

Press [RETURN] several times.

Television operation

You can operate the TV through the unit's remote control.

Point the remote control at the television

While pressing [⏻ TV], enter the code with the numbered buttons.

e.g. 01: [0] ➡ [1]

Manufacturer and Code No.

Brand	Code	Brand	Code
Panasonic	01/02/03/04/45	NOKIA	25/26/27
AIWA	35	NORDMENDE	10
AKAI	27/30	ORION	37
BLAUPUNKT	09	PHILIPS	05/06
BRANDT	10/15	PHONOLA	31/33
BUSH	05/06	PIONEER	38
CURTIS	31	PYE	05/06
DESMET	05/31/33	RADIOLA	05/06
DUAL	05/06	SABA	10
ELEMIS	31	SALORA	26
FERGUSON	10	SAMSUNG	31/32/43
GOLDSTAR/LG	31	SANSUI	05/31/33
GOODMANS	05/06/31	SANYO	21
GRUNDIG	09	SBR	06
HITACHI	22/23/31/40/41/42	SCHNEIDER	05/06/29/30/31
INNO HIT	34	SELECO	06/25
IRRADIO	30	SHARP	18
ITT	25	SIEMENS	09
JVC	17/39	SINUDYNE	05/06/33
LOEWE	07/46	SONY	08
METZ	28/31	TELEFUNKEN	10/11/12/13/14
MITSUBISHI	06/19/20	THOMSON	10/15/44
MIVAR	24	TOSHIBA	16
NEC	36	WHITE WESTINGHOUSE	05/06

Test by turning on the television ([⏻ TV]) and changing channels ([∧ ∨ CH]) after pressing [TV].
Repeat the procedure until you find the code that allows correct operation.
This setting is retained.

Operating the television

1. **Press [TV] to switch the remote control to operate the television.**
2. **Operate the television by pressing [⏻ TV] (turn on/off the television), [INPUT] (input select), [∧ ∨ CH] (channel select) or [+ − VOLUME] (adjust the volume).**

- When operating this unit, press [THEATER] to switch the remote control.
- If your television brand is not listed or if the code listed for your television does not allow control of your television, this remote control is not compatible with your television.

When other Panasonic products respond to this remote control

When other Panasonic products placed nearby affect this unit's remote control, change the remote control code on this unit and the remote control (the two must match).
Use "DVD 1", the factory set code, under normal circumstances.

To change the code on this unit

1 **While stopped**
Press [FUNCTIONS].

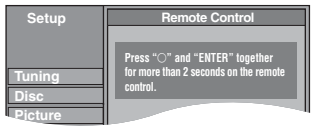
2 **Press [▲, ▼] to select "To Others" and press [ENTER].**

3 **Press [▲, ▼] to select "Setup" and press [ENTER].**

4 **Press [▲, ▼] to select "Others" and press [►].**

5 **Press [▲, ▼] to select "Remote Control" and press [ENTER].**

6 **Press [▲, ▼] to select the code ("DVD 1", "DVD 2" or "DVD 3") and press [ENTER].**



To change the code on the remote control

7 **While pressing [ENTER], press and hold the numbered button ([1], [2] or [3]) for more than 2 seconds.**

8 **Press [ENTER].**

■ When the following indicator appears on the unit's display

e.g. Display

Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds.

Note

Executing "Shipping Condition" in the Setup menu returns this unit code to "DVD 1". Change the remote control code to 1 (➡ step 7).

To return to the previous screen
Press [RETURN].

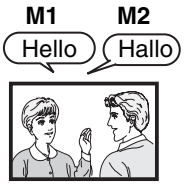
To exit the screen
Press [RETURN] several times.

Recording of bilingual programme

RAM

Both main and secondary audio can be recorded

You can change the audio during playback.
(➡ 30, Changing audio during play)

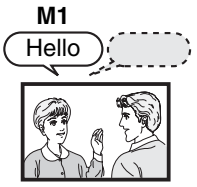


If you record from external equipment
–Select both “M 1” and “M 2” on the external equipment.

-R -R DL -RW(V) +R +R DL +RW

Select the main or secondary audio before recording

(➡ 51, Bilingual Audio Selection)
The selected audio only is recorded.



If you record from external equipment
–Select “M 1” or “M 2” on the external equipment.

Recording of Widescreen broadcasting

RAM

Recorded in 16:9 aspect (Widescreen)

-R -R DL -RW(V) +R +R DL +RW

Recorded in 4:3 aspect

Recording of digital broadcasting

It is not possible to record digital broadcasts that allow “One time only recording” onto DVD-R, DVD-R DL, DVD-RW, +R, +R DL, +RW or 8 cm DVD-RAM discs. Use a CPRM (➡ 65) compatible DVD-RAM.

RAM (CPRM compatible disc only)

-R -R DL -RW(V) +R +R DL +RW

✓: Can do, ×: Cannot do

- Even when copying to videotape the title may not be copied correctly because of the copy guard.
- You cannot copy a playlist created from “One time only recording” titles.

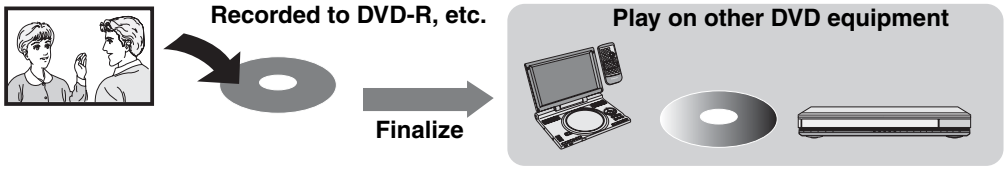
Playing the disc on other DVD players

-R -R DL -RW(V) +R +R DL

The disc must be finalized after recording (➡ 45).

It is necessary to finalize DVD-R, etc. on this unit after recording or copying titles to them. You can then play them as a commercially sold DVD-Video. However, the discs become play-only and you can no longer record or copy.※

※ You can record and copy again if you format DVD-RW.



+RW

To enable play on other DVD equipment, please use “Create Top Menu” in DVD Management menu (➡ 45).

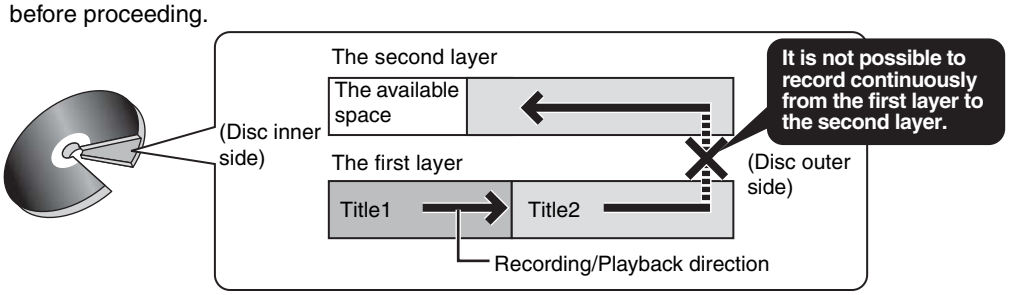
Recording to DVD-R DL and +R DL

-R DL +R DL

DVD-R DL and +R DL discs have two layers of recording surface on one side.

It is not possible to record continuously from the first layer to the second layer.

Recording stops when space on the first layer becomes full. You must close the first layer to start recording on the second layer (➡ 45, Close First Layer). Closing makes the first layer unavailable for recording (editing is still available). You cannot cancel closing. Make certain before proceeding.

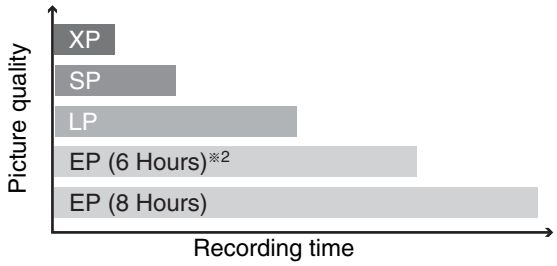


Recording modes and approximate recording times

Depending on the content being recorded, the recording times may become shorter than indicated.

Recording Mode	DVD-RAM		DVD-R, DVD-RW, +R, +RW 4.7GB
	4.7 GB	9.4 GB (Double-sided※1)	
XP (High picture quality recording)	1 h.	2 h.	1h.
SP (Standard recording)	2 h.	4 h.	2h.
LP (Long recording)	4 h.	8 h.	4h.
EP (Extra long recording)	8 h. (6 h.※2)	16 h. (12 h.※2)	8 h. (6 h.※2)
FR (Flexible Recording)	8 h. maximum	8 h. maximum for one side	8 h. maximum

Recording Mode	DVD-R DL, +R DL※3 8.5 GB	
	First layer (L0)	Second layer (L1)
XP (High picture quality recording)	55 min.	50 min.
SP (Standard recording)	1 h. 50 min.	1 h. 40 min.
LP (Long recording)	3 h. 40 min.	3 h. 20 min.
EP (Extra long recording)	7 h. 25 min. (5 h. 30 min.※2)	6 h. 50 min. (5 h. 15 min.※2)
FR (Flexible Recording)	7 h. 25 min. maximum	6 h. 50 min. maximum



※1 It is not possible to record or play continuously from one side of a double sided disc to the other.
※2 When "Recording time in EP mode" is set to "EP (6 Hours)" in the Setup menu (➡ 50).
The sound quality is better when using "EP (6 Hours)" than when using "EP (8Hours)".
※3 It is not possible to record continuously from the first layer to the second layer.

Note

- This unit uses variable bit rate (VBR) recording which varies the amount of data recorded to suit the images, so actual recording times and remaining recording times shown by the unit will be different. (The difference will be especially noticeable with DVD-R DL and +R DL.)
  Use a disc with plenty of remaining time to be sure.
- When recording to DVD-RAM using EP (8Hours) mode, play may not be possible on DVD players that are compatible with DVD-RAM. In this case use EP (6Hours) mode.

FR (Flexible Recording)

The unit automatically selects a recording rate between XP and EP (8Hours) that will enable the recordings to fit in the remaining disc space with the best possible recording quality.

- You can use FR mode in timer recording (➡ 26, 27, step 3) and Flexible Recording (➡ 25).

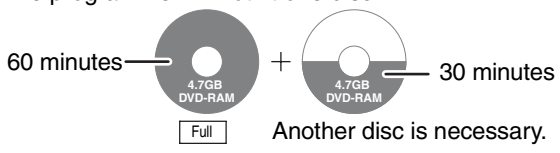
Using FR mode is convenient in these kinds of situations.

- When the amount of free space on the disc makes selecting an appropriate recording mode difficult
- When you want to record a long programme with the best picture quality possible

e.g. Recording a 90 minutes programme to disc

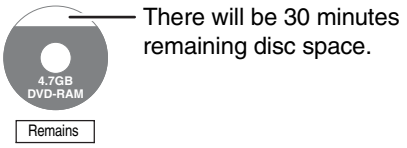
If you select XP mode

The programme will not fit one disc.



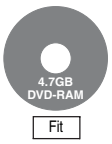
If you select SP mode

The programme will fit one disc.



If you select FR mode

The programme will fit one disc perfectly.



Disc Insertion/Ejection

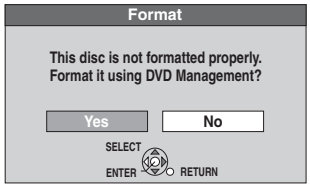
Refer to the control reference on page 24.

When the format confirmation screen is displayed

RAM -RW(V) +R +R DL +RW

When you insert a new disc and a disc recorded on a computer or other equipment, a format confirmation screen might be displayed.

Format the disc to use it. However, all the recorded contents are deleted.



Press [◄, ►] to select "Yes" and press [ENTER].

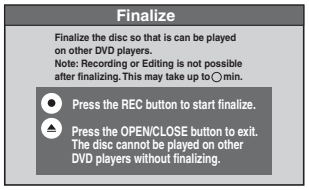
Several steps are necessary to format a disc. Refer to "Deleting all the contents of a disc—Format Disc" (➡ 44, step 5).

When removing a recorded disc

-R -R DL -RW(V) +R +R DL

When you press [▲ OPEN/CLOSE] on this unit while stopped:

The following screen appears when you have not processed the disc for play on other equipment.


Finalize
Finalize the disc so that is can be played on other DVD players.
Note: Recording or Editing is not possible after finalizing. This may take up to ○min.
Press the REC button to start finalize.
Press the OPEN/CLOSE button to exit.
The disc cannot be played on other DVD players without finalizing.

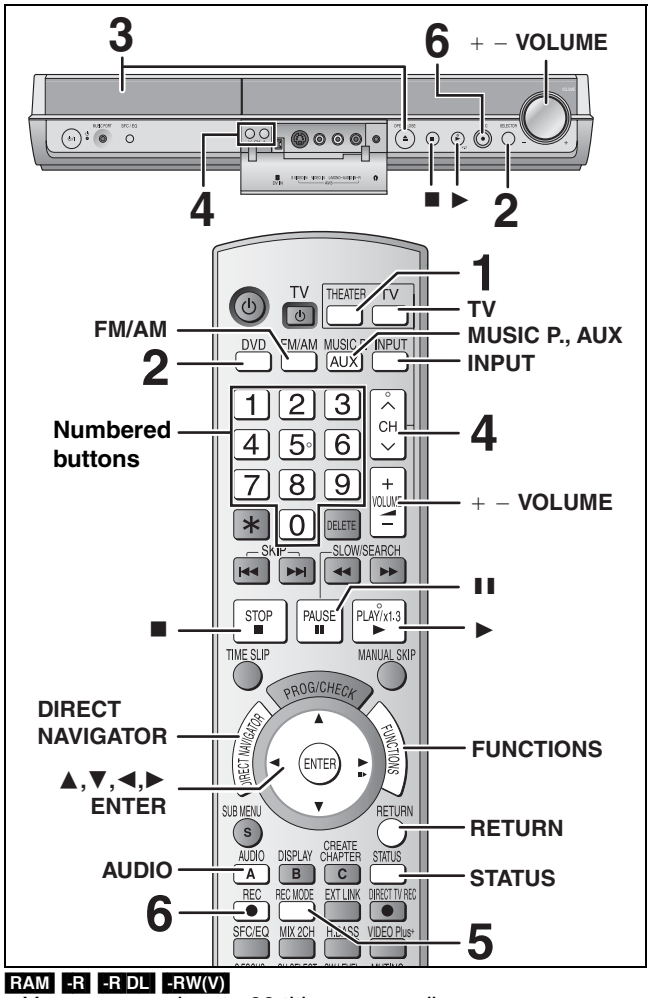
■ When finalizing the disc

Press [● REC].

- You cannot stop this process once you have started it.
- If you want to provide the disc with a name or set play menu select, select "Disc Name" (➡ 44) or "Auto-Play Select" (➡ 45) in "DVD Management" before finalizing.

■ When opening the tray without disc finalization

Press [▲ OPEN/CLOSE] on this unit.



RAM -R -R DL -RW(V)
- You can record up to 99 titles on one disc.

+R +R DL +RW
- You can record up to 49 titles on one disc.

See also the notes "Important notes for recording" (➡ 22).

Note
- RAM It is not possible to record continuously from one side of a double sided disc to the other. You will need to eject the disc and turn it over.
- +RW You can create Top Menu using "Create Top Menu" (➡ 45). Recording or editing on the disc may delete the menu. In that case, create the menu again.

Preparation
- Turn on the television and select the appropriate video input to suit the connections to this unit.
- Turn the unit on.

1 Press [THEATER] to switch the remote control to operate this unit.

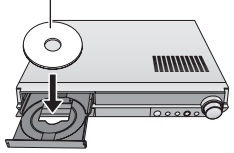
2 Press [DVD] to select the DVD drive.

This unit: Press [SELECTOR] to select the DVD drive.
e.g. Display

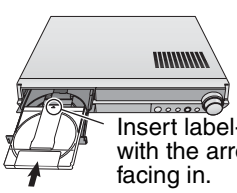
3 Press [▲ OPEN/CLOSE] on this unit to open the tray and insert a disc.

- Press the button again to close the tray.
- When using 8 cm DVD-RAM, or 8 cm DVD-R, remove the disc from the cartridge.

Insert label-up.



■ **Cartridge disc**



Insert label-up with the arrow facing in.

Insert fully so it clicks into place.

4 Press [∧ ∨ CH] to select the channel.

e.g. Display

To select with the numbered buttons:
e.g. 5: [0] ➡ [5]
15: [1] ➡ [5]

5 Press [REC MODE] to select the recording mode (XP, SP, LP or EP).

e.g. Display

Remaining time on the disc

6 Press [● REC] to start recording.

e.g. Display

The elapsed time is shown on the display.
Recording will take place on open space on the disc.
Data will not be overwritten.
- You can adjust the volume using [+ − VOLUME]. Adjusting the volume will not affect the recorded audio.
- You cannot change the channel or recording mode during recording. You can change the channel or recording mode while paused; however, the recording will then be as a separate title.
- You can record while the unit is in standby for timer recording, but once the time for the timer recording to begin is reached, any recording taking place will stop and the timer recording will begin.
- RAM You can change the audio being received by pressing [AUDIO] during recording. (This does not affect the actual recording of audio.)

■ To pause recording

Press [❚❚].
Press again to restart recording.
You can also press [● REC] to restart.
(Recorded title is not split into separate titles.)

■ To stop recording

Press [■].
- From the start to the end of the recording is called one title.
- -R -R DL -RW(V) +R +R DL +RW
  It takes about 30 seconds for the unit to complete recording management information after recording finishes.

■ If a station also broadcasts Teletext information

The unit automatically records the programme's and station's name if the station's "Title Page" is correctly set (➡ 53).
- The unit may take some time in retrieving titles (up to 30 minutes) and may fail in some cases.

Quick Start

1 Sec. Quick Start for Recording on DVD-RAM

Recording on DVD-RAM starts about 1 second after first pressing [⏻/I] on this unit or [⏻] to turn on the unit and then sequentially pressing [● REC].

Note

Startup takes more time when:
–You play a disc or start recording to discs other than DVD-RAM.
–The clock has not been set.

To specify a time to stop recording— One Touch Recording

RAM -R -R DL -RW(V) +R +R DL +RW

During recording

Press [● REC] on this unit to select the recording time.

- The unit's display changes as shown below.

OFF 0:30 ⟶ OFF 1:00 ⟶ OFF 1:30 ⟶ OFF 2:00
↰ Counter (cancel) ⟵ OFF 4:00 ⟵ OFF 3:00 ↲

- This does not work during timer recordings (➡ 26) or while using Flexible Recording (➡ below).
- If you change the channel or recording mode while recording is paused, the time specified to stop recording is cancelled.
- The unit turns off automatically after the time to stop recording is reached.

To cancel

Press [● REC] on this unit several times until the counter appears.

- The time to stop recording is cancelled; however, recording continues.

To stop recording partway

Press [■].

Flexible Recording
(Recording that fits the remaining disc space)

RAM -R -R DL -RW(V) +R +R DL +RW

The unit sets the best possible picture quality that fits the recording within the remaining disc space. The recording mode becomes FR mode. Refer to "FR (Flexible Recording)" (➡ 23).

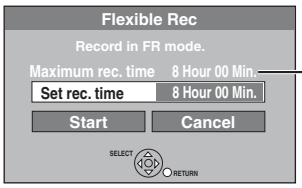
Preparation

- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.
- Press [∧ ∨ CH] to select the channel or press [INPUT] to select the external input (AV1, AV2, AV3 or DV) to record.

1 **While stopped**
Press [FUNCTIONS].

2 **Press [▲, ▼] to select "To Others" and press [ENTER].**

3 **Press [▲, ▼] to select "Flexible Rec" and press [ENTER].**



Maximum recording time
This is the maximum recording time in EP (8 Hours) mode.

4 **Press [◀, ▶] to select "Hour" and "Min." and press [▲, ▼] to set the recording time.**

- You can also set the recording time with the numbered buttons.
- You cannot record for more than 8 hours.

5 **When you want to start recording**
Press [▲, ▼, ◀, ▶] to select "Start" and press [ENTER].
Recording starts.

To exit the screen without recording

Press [RETURN].

To stop recording partway

Press [■].

To show the remaining time

Press [STATUS].

e.g. DVD-RAM

Remaining time of recording

Note

When performing EXT LINK recording (➡ 29), the flexible recording function does not work.

Playing while you are recording

RAM

Playing from the beginning of the title you are recording—Chasing playback

Press [▶] (PLAY) during recording.

There is no sound output while searching forward or backward.

To stop play

Press [■].

To stop recording

① Press [■] to stop playing.
② Press [■] (after 2 seconds).

To stop timer recording

① Press [■] to stop playing.
② Press [■] (after 2 seconds).
③ Press [◀, ▶] to select "Stop Recording" and press [ENTER].

Playing a title previously recorded while recording —Simultaneous rec and play

1 **Press [DIRECT NAVIGATOR] during recording.**

2 **Press [▲, ▼, ◀, ▶] to select a title and press [ENTER].**

To stop play

Press [■].

To exit the Direct Navigator screen

Press [DIRECT NAVIGATOR].

To stop recording

① Press [■] to stop playing.
② Press [DIRECT NAVIGATOR] to exit screen.
③ Press [■].

To stop timer recording

① Press [■] to stop playing.
② Press [DIRECT NAVIGATOR] to exit screen.
③ Press [■].
④ Press [◀, ▶] to select "Stop Recording" and press [ENTER].

Using another source while recording

You can watch and listen to other content during recording. Pictures being recorded are unaffected.

■ Television (➡ 21)

During recording

1 Press [TV] to switch the remote control to operate the television.
2 Press [INPUT] and press [∧ ∨ CH] to select the channel.

If your television is connected to this unit's AUX terminal (➡ 56), you can enjoy television broadcast with this unit's speakers.

3 Press [AUX] to select "AUX".
4 Adjust the volume on this unit.

■ Radio (➡ 46)

During recording

1 Press [THEATER] to switch the remote control to operate this unit.
2 Press [FM/AM] to select "FM" or "AM".
3 Press the numbered buttons or [∧ ∨ CH] to select the radio channel.
4 Adjust the volume on this unit.

■ Music port (➡ 56)

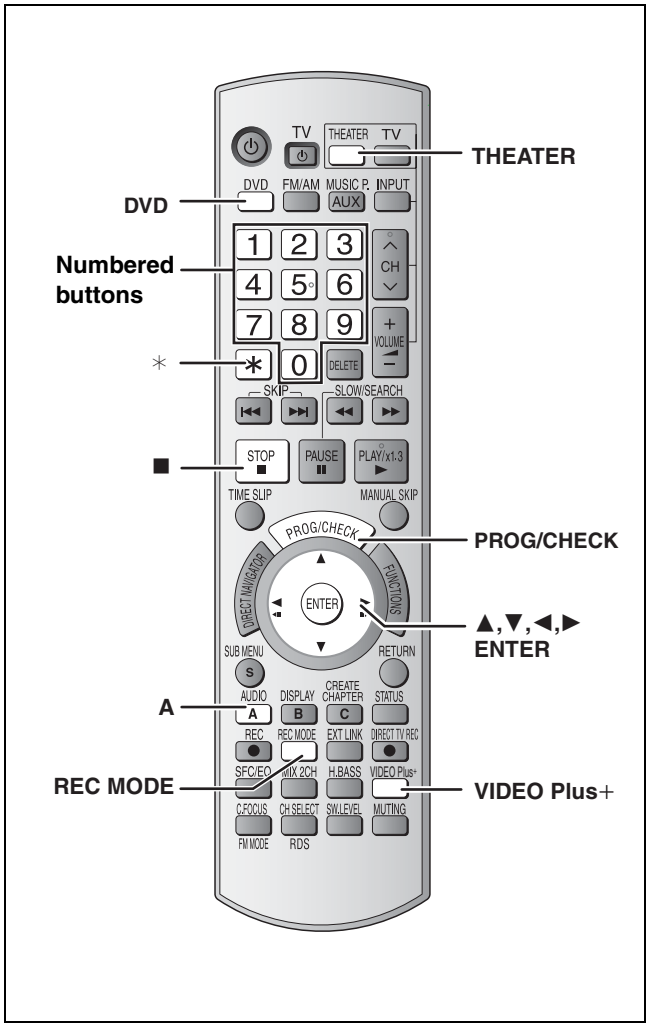
During recording

1 Press [THEATER] to switch the remote control to operate this unit.
2 Press [MUSIC P.] to select "F MUSICP".
3 Adjust the external device volume to a normal listening level, and then adjust the volume of this unit with [+ − VOLUME].

Note

When you want to operate the DVD drive again

1 Press [THEATER] to switch the remote control to operate this unit.
2 Press [DVD] to select the DVD drive.



RAM -R -R DL -RW(V) +R +R DL +RW

See also the notes "Important notes for recording" (➡ 22).

Preparation

- Turn on the television and select the appropriate video input to suit the connections to this unit.
- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.
- Check the time on the unit is correct.
- Insert a disc (➡ 24).

Using VIDEO Plus+ system to make timer recordings

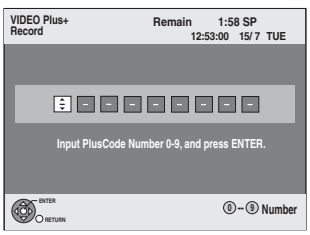
Entering PlusCode number is an easy way of timer recording. You can find these numbers in TV listings in newspapers or magazines.

- **Using PlusCode numbers for Satellite stations**

Set this unit to recognise PlusCode numbers for Satellite stations before you start the following operations (➡ 19, Timer recording from satellite receiver with VIDEO Plus+ system).

- You can enter up to 16 programmes up to a month in advance.

1 Press [VIDEO Plus+].

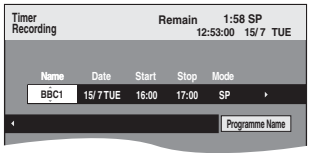


2 Press the numbered buttons to enter the PlusCode number.

- **To correct the number**

Press [◀] to move back to correct a digit.

3 Press [ENTER].

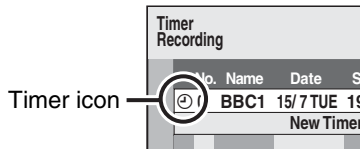


- Confirm the programme and make corrections if necessary using [▲, ▼, ◀, ▶] (➡ 27, Manually programming timer recordings, step 3).
- When "—" appears in the "Name" column, you cannot set timer recording. Press [▲, ▼] to select desired programme position. After you have entered the information of a TV station, it is kept in the unit's memory.
- You can also press [REC MODE] to change the recording mode.
- **To enter programme name**

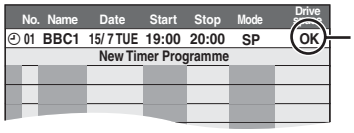
Press [◀, ▶] to select "Programme Name" and press [ENTER]. (➡ 43)

4 Press [ENTER].

The settings are stored and the programme goes to timer recording standby.
The timer icon is displayed in left column.



"◴" lights on the unit's display to indicate timer recording standby has been activated.



When "!" appears, make sure the disc has a sufficient space.

Repeat steps 1–4 to programme other recordings.

■ **To cancel recording when recording has already begun (➡ 27)**

■ **Notes on timer recording (➡ 27)**

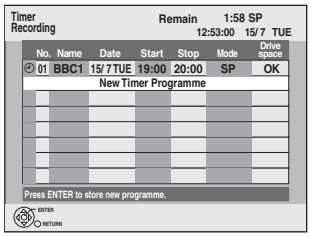
To exit the timer recording list

Press [PROG/CHECK].

Manually programming timer recordings

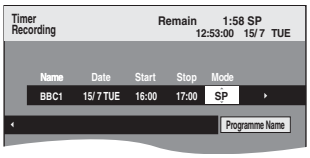
You can enter up to 16 programmes up to a month in advance. (Each daily or weekly programme is counted as one programme.)

1 Press [PROG/CHECK].


Timer Recording
Remain 1:58 SP
12:53:00 15/ 7 TUE
No. Name Date Start Stop Mode Drive space
01 BBC1 15/ 7 TUE 19:00 20:00 SP OK
New Timer Programme
Press ENTER to store new programme.
ENTER
RETURN

2 Press [▲, ▼] to select "New Timer Programme" and press [ENTER].

3 Press [►] to move through the items and change the items with [▲, ▼].



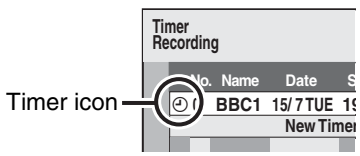
- Press and hold [▲, ▼] to alter the Start (Start time) and Stop (Finish time) in 30-minute increments.
- You can also set Name (Programme position/TV Station Name), Date, Start (Start time), and Stop (Finish time) with the numbered buttons.
- You can also press [REC MODE] to change the recording mode.
- **Date**

→ Date: Current date up to one month later
↓ ↑ minus one day
Daily timer: SUN-SAT→MON-SAT→MON-FRI
↓ ↑
→ Weekly timer: SUN→---→SAT

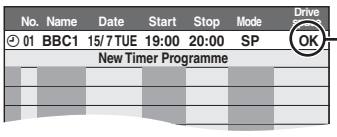
- **To enter programme name**
  Press [◄, ►] to select "Programme Name" and press [ENTER]. (➡ 43)

4 Press [ENTER].

The settings are stored and the programme goes to timer recording standby.
The timer icon is displayed in left column.



"◴" lights on the unit's display to indicate timer recording standby has been activated.



When "!" appears, make sure the disc has a sufficient space.

Repeat steps 2–4 to programme other recordings.

To exit the timer recording list

Press [PROG/CHECK].

To cancel recording when recording has already begun

1 While the unit is on
Press [■].
The confirmation screen appears.

2 Press [◄, ►] to select "Stop Recording" and press [ENTER].
Recording stops and the timer recording is cancelled. (Daily and weekly timers remain and timer recording will start as programmed.)

To release the programme from recording standby

1 Press [PROG/CHECK].

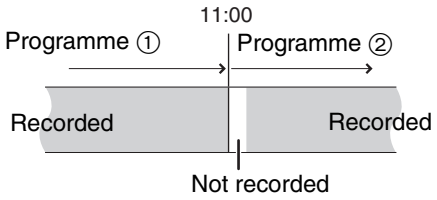
2 Press [▲, ▼] to select the programme and press [A].
The timer icon "◴" (➡ left) disappears.

- **To put the programme on recording standby again**
  Perform step 2 again before the programme start time to put the programme on recording standby. Timer recording will work only if the timer icon is displayed.

Notes on timer recording

- "◴" flashes on the unit's display for about 5 seconds when the unit cannot go to timer recording standby. (e.g. a recordable disc is not in the disc tray).
- Timer recordings begin when the set time is reached even when recording or when playing.
- If the unit is turned on when timer recording begins, it remains turned on after recording finishes. It does not turn off automatically. You can turn the unit off during timer recording.
- If the unit is not put in the timer recording standby mode at the last 10 minutes before the programmed timer recording starting time, the "◴" flashes on the unit's display. In this case, insert a recordable disc to put the unit in the timer recording standby mode.
- If you are making consecutive recordings that will start one after the other, the beginning of the later programme cannot be recorded.

e.g. Programme ① 10:00–11:00
Programme ② 11:00–12:00



- If the actual broadcasting times of timer recordings overlap, the recording that starts first always has priority, and the recording of the later programme will start only after the first timer recording has finished.
- [VIDEO Plus+] and [PROG/CHECK] will function even when the unit is in standby mode.
- You cannot eject a disc while the unit is in timer recording standby mode.

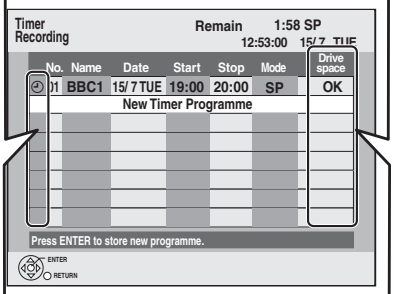
Refer to the control reference on page 26.

Check, change or delete a programme

Even when the unit is in standby mode, you can display the timer recording list by pressing [PROG/CHECK].

Icons

- Timer recording standby is activated.
- ● This programme is currently recording.
- Ⓦ The times overlap those in another programme. Recording of the programme with the later start time starts when the earlier programme finishes recording.
- ⊖ You stopped a weekly or daily timer recording. The icon disappears the next time the timer programme starts recording.
- Ⓕ The disc was full so the programme failed to record.
- ⧄ The material was copy-protected so it was not recorded.
- Ⓧ The programme did not complete recording because the disc is dirty or some other reason.


Timer Recording
Remain 1:58 SP
12:53:00 15/ 7 TUE
No. Name Date Start Stop Mode Drive space
01 BBC1 15/ 7 TUE 19:00 20:00 SP OK
New Timer Programme
Press ENTER to store new programme.
ENTER
RETURN

Message displayed in the "Drive space" line

- **OK:** Displayed if the recording can fit in the remaining space.
- → **(Date):** For recordings made daily or weekly, the display will show until when recordings can be made (up to a maximum of one month from the present time) based on the time remaining on the disc.
- **! :** It may not be possible to record because:
  - the disc is write-protected.
  - there is no more space left.
  - the number of possible titles has reached its maximum.

■ To change a programme

Press [▲, ▼] to select the programme and press [ENTER]. (➡ 27, Manually programming timer recordings, step 3)

■ To delete a programme

Press [▲, ▼] to select the programme and press [∗].

■ To exit the timer recording list

Press [PROG/CHECK].

Programmes that failed to record are deleted from the timer recording list at 4 a.m. two days later.

Making timer recordings on the television
(e.g. of digital broadcasts)

To make a timer recording with your television, connect to a television with a Q Link function (➡ 57) that you can use for setting timer recordings using a fully wired 21-pin Scart lead (➡ 12–14).

1 Make timer programming on the TV.

2 Press [DVD] to select the DVD drive.

3 Turn off the unit.

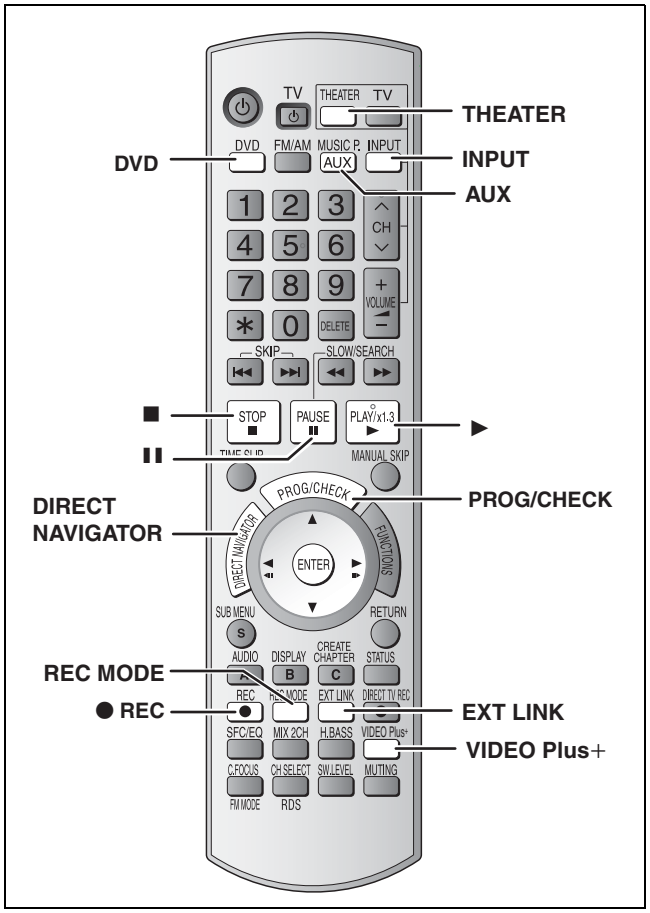
The start and end of recording is controlled by the TV.

To stop recording

Press [■].

Note

- When this unit is in EXT LINK standby ("EXT-L" is shown on the unit's display), recording from TV does not start.
- Programmes are recorded as one title on this unit when the end time of the earlier timer recording and the start time of the later timer recording are close to each other.
  RAM To divide the titles, go to "Divide Title" (➡ 39).



RAM -R -R DL -RW(V) +R +R DL +RW

See also the notes "Important notes for recording" (➡ 22).

Preparation
- Press [THEATER] to switch the remote control to operate this unit.
- Insert a disc (➡ 24).
- When recording a bilingual programme (➡ 22).

Manual Recording

Preparation
- Connect a satellite/digital terrestrial receiver to this unit's input terminals (➡ 13).
- When the output signal from the external equipment is NTSC, change the "TV System" to "NTSC" in the Setup menu (➡ 54).
- Press [DVD] to select the DVD drive.

1 **While stopped**

Press [INPUT] to select the input channel for the equipment you have connected.

e.g. If you have connected to AV2 input terminals, select "AV2".

2 **Press [REC MODE] to select the recording mode.**

3 **Select the channel on the other equipment.**

4 **Press [● REC].**

Recording starts.

To skip unwanted parts
Press [❚❚] to pause recording. (Press again to restart recording.)

To stop recording
Press [■].

Linked timer recordings with external equipment (SKY Digital STB/digital terrestrial receiver) — EXT LINK

To record programmes from a SKY Digital STB/digital terrestrial receiver using timer programming

Preparation
- Make sure you connect the AV2 input terminal of this unit to "VCR Scart Terminal" of a SKY Digital STB/digital terrestrial receiver with a 21-pin Scart lead (➡ 13).
- Set "AV2 Input" and "Ext Link" to match the connected equipment in the Setup menu (➡ 51).

1 **Make timer programming on SKY Digital STB/digital terrestrial receiver.**

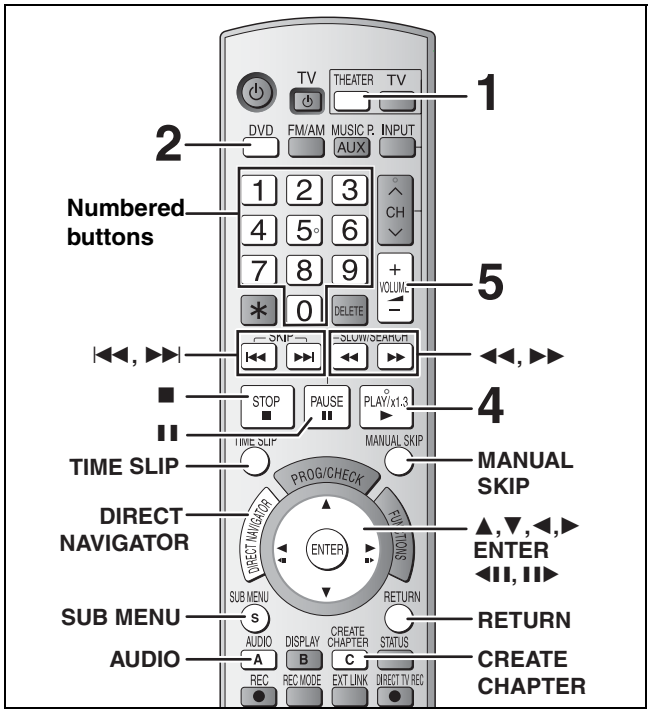
2 **Press [DVD] or [AUX] to select the DVD drive or "AUX".**

3 **Press [EXT LINK].**

The unit turns off and "EXT-L" lights on the unit's display to indicate timer recording standby has been activated.

To cancel the external control
Press [EXT LINK] to stop recording or to cancel linked timer recording standby.
- In order to prevent accidental operation, press [EXT LINK] to cancel the setting after recording is finished.

Note
- [EXT LINK] will function even when the unit is in standby mode, if the DVD drive is selected.
- In the following situations, [EXT LINK] will not function:
  –"FM", "AM", or "F MUSICP" is selected as the source.
  –A source other than DVD drive is selected while the unit is in standby mode.
- This function does not work with some equipment. Refer to the equipment's operating instructions.
- The beginnings of recordings may not be recorded correctly in some cases.
- When "Ext Link" is set to "Ext Link 2", this function does not work if the input signal is NTSC system.
- Programmes are recorded as one title on this unit when the end time of the earlier timer recording and the start time of the later timer recording are close to each other.
  RAM To divide the titles, go to "Divide Title" (➡ 39).
- While the unit is in EXT LINK standby mode or recording, video picture is from the AV2 input terminal irrespective of "AV1 Output" setting (➡ 51).
- While the unit is in EXT LINK standby mode or recording, only the following operations can be performed.
  –Programming timer recording (Press [VIDEO Plus+] or [PROG/CHECK]).
  –Playing the title RAM (Press [►] (PLAY) or [DIRECT NAVIGATOR]).
- You cannot eject a disc while the unit is in EXT LINK standby mode.



■ If the recorded title is stretched vertically

If recorded to a DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW disc, 16:9 aspect image will record as 4:3 images.

- You may be able to adjust it by changing the display mode on your television, please refer to the television's operating instructions.

Preparation

- Turn on the television and select the appropriate video input to suit the connections to this unit.
- Turn on this unit.

1 Press [THEATER] to switch the remote control to operate this unit.

2 Press [DVD] to select the DVD drive.

This unit: Press [SELECTOR] to select the DVD drive.
e.g. Display

3 Insert a disc (➡ 24).

4 Press [▶] (PLAY).

RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)
Play starts from the most recently recorded title.

e.g. Display

DVD-V DVD-A CD VCD and MP3
Play starts from the beginning of the disc.

5 Adjust the volume with [+ − VOLUME].

■ When a menu screen appears on the television

DVD-V DVD-A
Press [▲, ▼, ◀, ▶] to select the item and press [ENTER].
Some items can also be selected using the numbered buttons.
VCD
Press the numbered buttons to select the item.
e.g. 5: [0] ➡ [5] 15: [1] ➡ [5]

- **To return to the menu screen**

DVD-V Press [DIRECT NAVIGATOR] or [SUB MENU].
DVD-A Press [DIRECT NAVIGATOR].
VCD Press [RETURN].

- The playing method may differ from the one described above depending on disc types. Read the disc's instructions carefully.

To change the sound quality (➡ 48)

Note

- It is not possible to play continuously from one side of a double sided disc to the other. You will need to eject the disc and turn it over.
- Depending on the disc, it may take time for the menu screen, pictures, sound, etc. to start.
- Discs continue to rotate while menus are displayed. Press [■] when you have finished playback to protect the unit's motor, your television screen and so on.

Selecting recorded programmes (titles) to play—Direct Navigator

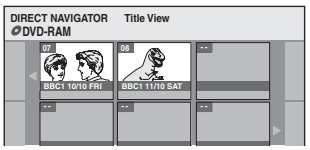
RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)
Simply select the recorded programmes (titles) you want to play from the menu.

1 Press [THEATER] to switch the remote control to operate this unit.

2 Press [DVD] to select the DVD drive.
This unit: Press [SELECTOR] to select the DVD drive.

3 Insert a disc (➡ 24).

4 Press [DIRECT NAVIGATOR].



5 Press [▲, ▼, ◀, ▶] to select the title and press [ENTER].
You can also select titles with the numbered buttons.
e.g. 5: [0] ➡ [5] 15: [1] ➡ [5]

To show other pages
Press [▲, ▼, ◀, ▶] to select "Previous" or "Next" and press [ENTER].
- You can also press [|◀◀, ▶▶|] to show other pages.

6 Adjust the volume with [+ − VOLUME].

To exit the screen
Press [DIRECT NAVIGATOR].
To change the sound quality (➡ 48)

Direct Navigator screen icons

●	Currently recording.
🔒	Title protected.
	Title that was not recorded due to recording protection (Digital broadcasts etc.)
×	Title cannot be played because data is damaged.
	Title with "One time only recording" restriction
N (NTSC) P (PAL)	Title recorded using a different encoding system from that of the TV system currently selected on the unit.

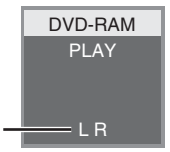
Note

- RAM -R -R DL -RW(V) +R +R DL +RW The unit stops playing a disc when timer recording starts.
- RAM Press [▶] (PLAY) when you wish to start playing the disc while recording (➡ 25, Chasing playback).

Changing audio during play

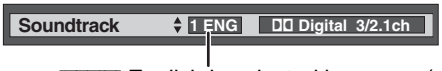
Press [AUDIO].

RAM -RW(VR) VCD
LR→L→R



e.g. "L R" is selected

DVD-V DVD-A
You can change the audio channel number each time you press the button. This allows you to change things like the soundtrack language.



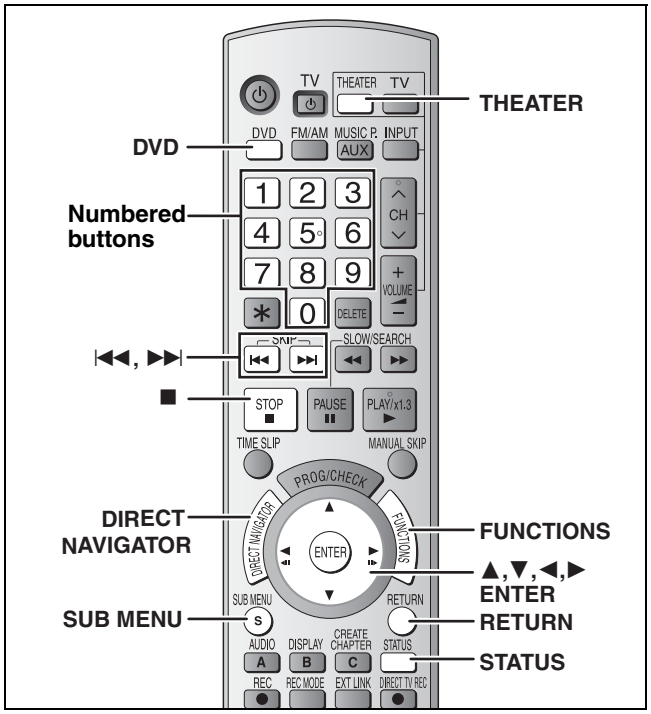
e.g. DVD-V English is selected language (➡ 35, Soundtrack).

Note
You cannot change the audio type when a DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW disc is in the disc tray while DVD drive is selected.

Operations during play

Stop	**Press [■].** The stopped position is memorized. **Resume play function** Press [▶] (PLAY) to restart from this position. The stopped position is cleared when: – you press [■] several times. – you open the tray. – DVD-A CD VCD and MP3 you turn the unit off.
Pause	**Press [❚❚].** Press again or press [▶] (PLAY) to restart play.
Search	**Press [◀◀] or [▶▶].** ● The speed increases up to 5 steps. (+R +R DL +RW up to 3 steps) ● Press [▶] (PLAY) to restart play. ● Audio is heard during first level search forward. DVD-A (excluding motion picture parts) CD and MP3 : Audio is heard during all levels of search. ● Depending on the disc, Searching may not be possible.
Skip	**During play or while paused, press [|◀◀] or [▶▶|].** The unit will skip titles, chapters, or tracks according to the number of times the button is pressed and play will begin.
Starting from a selected title	**Press the numbered buttons.** Play starts from the selected title, chapter or track. MP3/JPEG e.g. 5: [0] ➡ [0] ➡ [0] ➡ [5] 115: [0] ➡ [1] ➡ [1] ➡ [5] 15: [0] ➡ [0] ➡ [1] ➡ [5] DVD-A Selecting groups While stopped (screen saver is displayed on the television ➡ right) e.g. 5: [5] Other discs (You can select a track with DVD-Audio.) e.g. 5: [0] ➡ [5] 15: [1] ➡ [5] ● This works only when stopped (screen saver is displayed on the television ➡ above) with some discs. ● VCD (with playback control) If you press the numbered buttons while stopped (the above screen saver is displayed on the television) you can cancel PBC. (Elapsed play time appears on the unit's display.)
Quick View RAM	**Press and hold [▶] (PLAY/×1.3).** Play speed is quicker than normal. ● Press again to return to normal speed.
Slow-motion※ RAM -R -R DL -RW(V) +R +R DL +RW DVD-V DVD-A (Motion picture parts only) -RW(VR) VCD	**While paused, press [◀◀] or [▶▶].** The speed increases up to 5 steps. ● Press [▶] (PLAY) to restart play. ● VCD Forward direction [▶▶] only. ● The unit will pause if slow-motion play is continued for approximately 5 minutes (excluding DVD-V DVD-A VCD).
Frame-by-frame※ RAM -R -R DL -RW(V) +R +R DL +RW DVD-V DVD-A (Motion picture parts only) -RW(VR) VCD	**While paused, press [◀❚❚] or [❚❚▶].** ● Each press shows the next frame. ● Press and hold to change in succession forward or backward. ● Press [▶] (PLAY) to restart play. ● VCD Forward direction [❚❚▶] only.
Skipping the specified time (Time Slip)※ RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)	**1 Press [TIME SLIP].** **2 Press [▲, ▼] to select the time and press [ENTER].** Play skips the specified time. ● Each time you press [▲, ▼], the time increases [▲] or decreases [▼] by 1 minute intervals. (Press and hold for 10-minute intervals.)
Manual Skip※ RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)	**Press [MANUAL SKIP].** Play restarts approximately 30 seconds later.
Create Chapter RAM (➡ 38, Title/Chapter)	**Press [CREATE CHAPTER].** Chapters are divided at the point pressed. The message screen appears for 5 seconds to confirm that a chapter is created. ● Press [|◀◀, ▶▶|] to skip to the start of a chapter. ● You cannot create chapters when unit is in EXT LINK standby.

※Excluding MP3/JPEG



You can play CD-R/CD-RW and DVD-R discs which contain MP3 files or still pictures that have been recorded on a computer.

Preparation

- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.

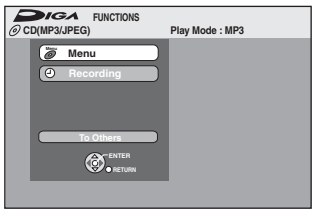
Selecting file type to play

The screen shown below is displayed when you insert a disc containing MP3 files and still pictures (JPEG/TIFF).
e.g.

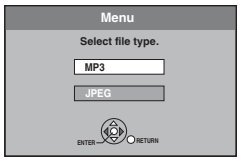
- When playing the file displayed on the screen
  Press [ENTER].
- When playing other file displayed on the screen
  Press [ENTER] and follow the steps below.

To select file type

1 Press [FUNCTIONS].



2 Press [▲, ▼] to select "Menu" and press [ENTER].



3 Press [▲, ▼] to select file type and press [ENTER].

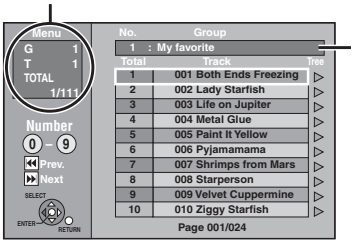
➡ right, step 2

Playing MP3 and still pictures (JPEG/TIFF)

1 Press [DIRECT NAVIGATOR].

■MP3

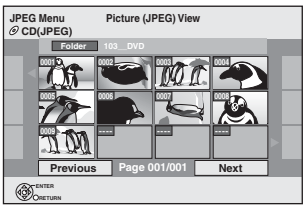
G: Group No.
T: Track No. in the group
TOTAL: Track No./Total tracks in all groups



Selected group

- Files are treated as tracks and folders are treated as groups.
- "☞" indicates the track currently playing.

■Still picture (JPEG/TIFF)



To switch to other menu
Press [RETURN] and perform steps 1-3 in "To select file type" on the left column selecting file type in step 3.

2 Press [▲, ▼, ◄, ►] to select the file (track or title) and press [ENTER].

Play starts on the selected file (track or title).

- You can also select the file (track or title) with the numbered buttons
  e.g. 5: [0] ➡ [0] ➡ [0] ➡ [5]
  15: [0] ➡ [0] ➡ [1] ➡ [5]

To show other pages
Press [|◀◀] (Previous) or [▶▶|] (Next).

To stop playing
Press [■].

- (JPEG) The unit remembers the still picture where you stopped play. This is cleared when you turn the unit off or remove the disc.

To display the previous or next still picture during play (JPEG)
Press [◄, ►].

To return to the previous screen
Press [RETURN].

To exit the screen
Press [DIRECT NAVIGATOR].

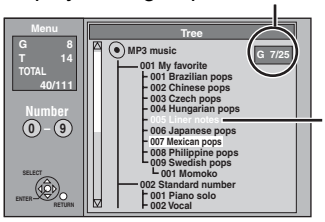
To select other folder (group)

MP3

1 **While the file list is displayed**

Press [►].

G: Selected group No. /Total group No.
If the group has no track, "– –" is displayed as group number.



Groups that contain no compatible files.

2 **Press [▲, ▼] to select a folder (group) and press [ENTER].**

The file list for the folder (group) appears.

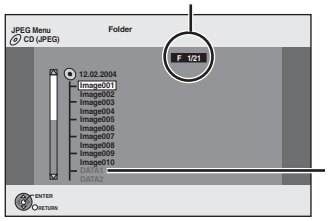
Still picture

1 **While the JPEG Menu is displayed**

Press [▲, ▼, ◄, ►] to select "Folder" and press [ENTER].

2 **Press [▲, ▼, ◄, ►] to select the folder and press [ENTER].**

F: Selected folder no./Total folder no.



Folders that contain no compatible files.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [DIRECT NAVIGATOR].

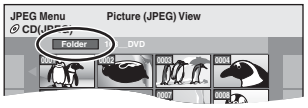
Useful functions during still picture play

Start Slide Show / Slide Interval

You can display still pictures one by one with constant interval.

While the JPEG Menu is displayed

1 Press [▲, ▼, ◄, ►] to select "Folder" and press [SUB MENU].



2 Press [▲, ▼] to select "Start Slide Show" and press [ENTER].

- **To change the slide interval**

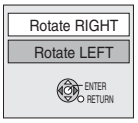
① In step 2 above, press [▲, ▼] to select "Slide Interval" and press [ENTER].
② Press [◄, ►] to select the desired interval and press [ENTER].
- You can select a slide interval between 0-30 sec.

Rotate

While playing

1 Press [SUB MENU].

2 Press [▲, ▼] to select "Rotate RIGHT" or "Rotate LEFT" and press [ENTER].



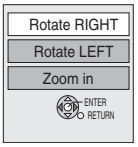
To return the rotated picture to its original position
Press [▲, ▼] to select the opposite rotation in step 2 and press [ENTER].
- Rotation information will not be stored.

Zoom in / Zoom out

While playing

1 Press [SUB MENU].

2 Press [▲, ▼] to select "Zoom in" and press [ENTER].

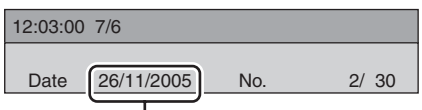


To return the picture to its original size
Press [▲, ▼] to select "Zoom out" in step 2 and press [ENTER].
- When zooming in, the picture may be cut off.
- The enlargement information will not be stored.
- The "Zoom in/Zoom out" function is only available for still pictures smaller than 640 x 480 pixels.

Properties

While playing

Press [STATUS] twice.



Shooting date

To exit the picture properties screen
Press [STATUS] again.

Regarding MP3 and still pictures

- Compatible formats: ISO9660 level 1 or 2 (except for extended formats) and Joliet
- This unit is compatible with multi-session but reading or play of the disc may take time if there are a lot of sessions.
- Operation may take time to complete when there are many files (titles or tracks) and/or folders (groups) and some files (tracks) may not display or be playable.
- English alphabet and Arabic numerals are displayed correctly. Other characters may not be displayed correctly.
- The display order on this unit may differ from how the order is displayed on a computer.
- Depending on how you create the disc (writing software), files (tracks) and folders (groups) may not play in the order you numbered them.
- This unit is not compatible with packet-write format.
- Depending on the recording conditions, some items may not be playable.

MP3

Playable discs	DVD-R, CD-R/RW
File format	MP3 ● Files must have the extension ".mp3" or ".MP3".
Maximum number of folders (groups)	300 (including the root folder)
Maximum number of files (tracks)	3000※1
Bit rates	32 kbps to 320 kbps
Sampling frequency	16 kHz/22.05 kHz/24 kHz/32 kHz/ 44.1kHz/48 kHz
ID3 tags	Not compatible

- If there is a large amount of still picture data etc. within a MP3 file, play may not be possible.

Still pictures (JPEG, TIFF※2)

Playable discs	DVD-R, CD-R/RW
File format	JPEG, TIFF (non-compressed RGB chunky format) ● Files must have the extension ".jpg", ".JPG", ".tif" or ".TIF".
Number of pixels	34×34 to 6144×4096 (Sub sampling is 4:2:2 or 4:2:0)
Maximum number of folders	300 (including the root folder)
Maximum number of files	3000※1
MOTION JPEG	Not compatible

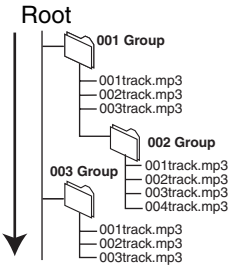
※1 Total number of recognizable file including MP3, JPEG and other type of files is 4000.

※2 Operation may take time to complete when playing TIFF format still pictures.

You can play MP3 and still pictures (JPEG/TIFF) on this unit by making folders as shown below. However depending on how you create the disc (writing software), play may not be in the order you numbered the folders.

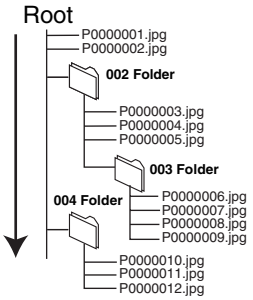
Structure of MP3 folders
Prefix with 3-digit numbers in the order you want to play them.

Order of play

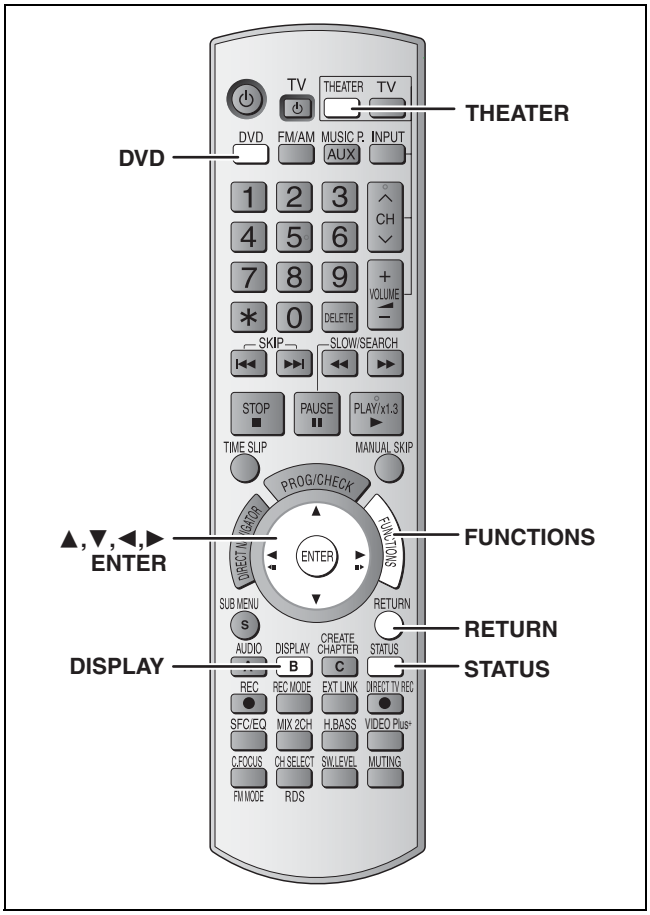


Structures of still pictures (JPEG/TIFF)
Files inside a folder are displayed in the order they were updated or taken.

Order of play



- When the highest level folders are "DCIM" folders, they are displayed first on the tree.



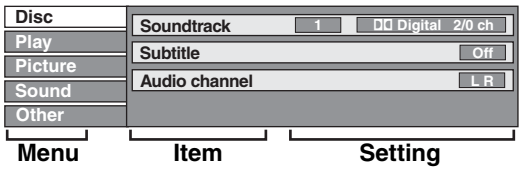
Using on-screen menus

Common procedures

Preparation

- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.

1 Press [DISPLAY].



- Depending on the condition of the unit (playing, stopped, etc.) and disc contents, there are some items that you cannot select or change.

2 Press [▲, ▼] to select the menu and press [►].

3 Press [▲, ▼] to select the item and press [►].

4 Press [▲, ▼] to select the setting.

- Some items can be changed by pressing [ENTER].

To clear the on-screen menus

Press [DISPLAY].

Disc menu—Setting the disc content

Soundtrack※ DVD-V DVD-A

Select the audio and language (➡ below, Audio attribute, Language).

RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)

The disc's audio attributes appear.

VCD (SVCD)

Select the soundtrack number (1–2).

Subtitle※ DVD-V DVD-A

Turn the subtitle on/off and select the language (➡ below, Language).

RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR) (Only discs that contain subtitle on/off information)

- Subtitle on/off information cannot be recorded using this unit.

VCD (SVCD)

Turn the subtitle on/off and select the subtitle number (1–4).

Audio channel RAM -RW(VR) VCD

(➡ 30, Changing audio during play)

Angle※ DVD-V DVD-A

Change the number to select an angle.

STILL-P (Still picture) DVD-A

Selects the play method for still pictures.

Slide Show: Plays according to the default order on the disc.

Page: Select the still picture number and play.

- RANDOM: Plays in random order.
- Return: Returns to the default still picture on the disc.

PBC (Playback control ➡ 65) VCD

Indicates whether menu play (playback control) is on or off. (unchangeable)

※ With some discs, you may only be able to make changes using the menus (➡ 30) on the disc.

- The display changes according to the disc content. You cannot change when there is no recording.

Audio attribute

LPCM/PPCM/DD Digital/DTS/MPEG: Signal type
ch (channel): Number of channels
k (kHz): Sampling frequency
b (bit): Number of bits

Language

ENG: English	DAN: Danish	THA: Thai
FRA: French	POR: Portuguese	POL: Polish
DEU: German	RUS: Russian	CES: Czech
ITA: Italian	JPN: Japanese	SLK: Slovak
ESP: Spanish	CHI: Chinese	HUN: Hungarian
NLD: Dutch	KOR: Korean	FIN: Finnish
SVE: Swedish	MAL: Malay	✳: Others
NOR: Norwegian	VIE: Vietnamese	

Play menu—Change the play sequence

This function works only when the elapsed play time is displayed. Select the item for repeat play. Depending on the disc, the items that can be selected will differ.

Repeat Play

- All — CD VCD
- Chapter — RAM -R -R DL -RW(V) +R +R DL +RW DVD-V -RW(VR)
- Group — DVD-A and MP3
- PL (Playlist) — RAM -RW(VR)
- Title — RAM -R -R DL -RW(V) +R +R DL +RW DVD-V -RW(VR)
- Track — DVD-A CD VCD and MP3

Select "Off" to cancel.

Refer to the control reference on page 35.

Picture menu—Change the picture quality

Playback NR

Reduces noise and picture degradation.
On ⟷ Off

Progressive※ (➡ 65)

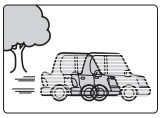
Select “On” to enable progressive output.
Select “Off” if the picture is stretched horizontally.

Transfer※ [When “Progressive” (➡ above) is set to “On”.]

Select the method of conversion for progressive output to suit the type of title being played (➡ 65, Film and video).

When the output signal is PAL

- **Auto:** Automatically detects the film and video content, and appropriately converts it.
- **Video:** Select when using “Auto”, and the video content is distorted.
- **Film:** Select this if the edges of the film content appear jagged or rough when “Auto” is selected. However, if the video content is distorted as shown in the illustration to the right, then select “Auto”.



- When the tray is opened, the setting will return to “Auto”.

When the output signal is NTSC

- **Auto1 (normal):** Automatically detects the film and video content, and appropriately converts it.
- **Auto2:** In addition to “Auto1”, automatically detects film contents with different frame rates and appropriately converts it.
- **Video:** Select when using “Auto1” or “Auto2”, and the video content is distorted.

AV-in NR (Only when AV1, AV2 or AV3 is selected)

Reduces video tape noise while copying.

- **Automatic:** Noise reduction only works on picture input from a video tape.
- **On:** Noise reduction works for input video.
- **Off:** Noise reduction is off. You can record the input signal as it is.

※ Only when you have set “Progressive” to “On” in the Setup menu (➡ 20).

Sound menu—Change the sound effect

Dialog Enhancer

RAM -R -R DL -RW(V) +R +R DL +RW DVD-V DVD-A -RW(VR)

(Dolby Digital, 3-channel or over only, including a center channel)

The volume of the center channel is raised to make dialogue easier to hear.

Other menu—Change the display position

Position

1–5: The higher the setting the lower the on-screen menu moves.

FUNCTIONS window

By using the FUNCTIONS window you may access the main functions quickly and easily.

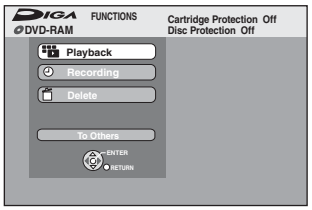
Preparation

- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.

1 **While stopped**

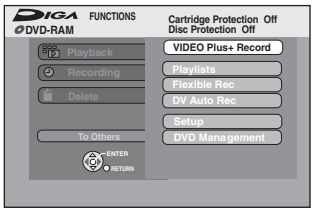
Press [FUNCTIONS].

Functions displayed depend on the type of disc.



2 Press [▲, ▼] to select an item and press [ENTER].

- If you select “To Others” and press [ENTER], the following screen appears. Press [▲, ▼] to select an item and press [ENTER].



- If you press [RETURN], you can return to the previous screen.

To exit the FUNCTIONS window
Press [FUNCTIONS].

Status message

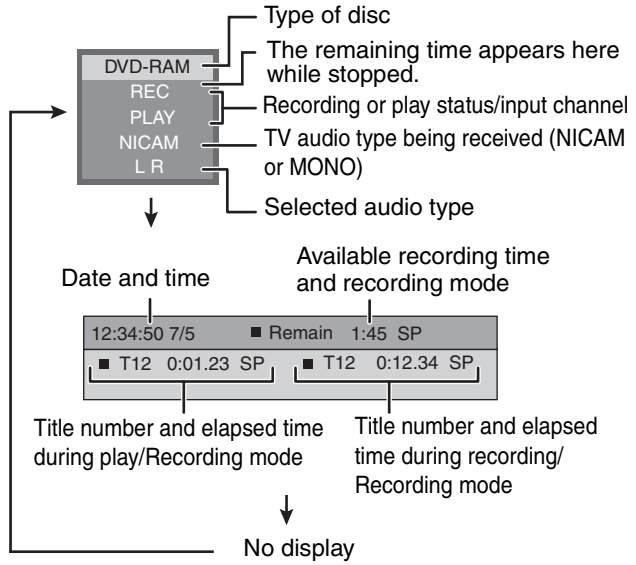
Status messages appear on the television during operation to show the condition of the unit.

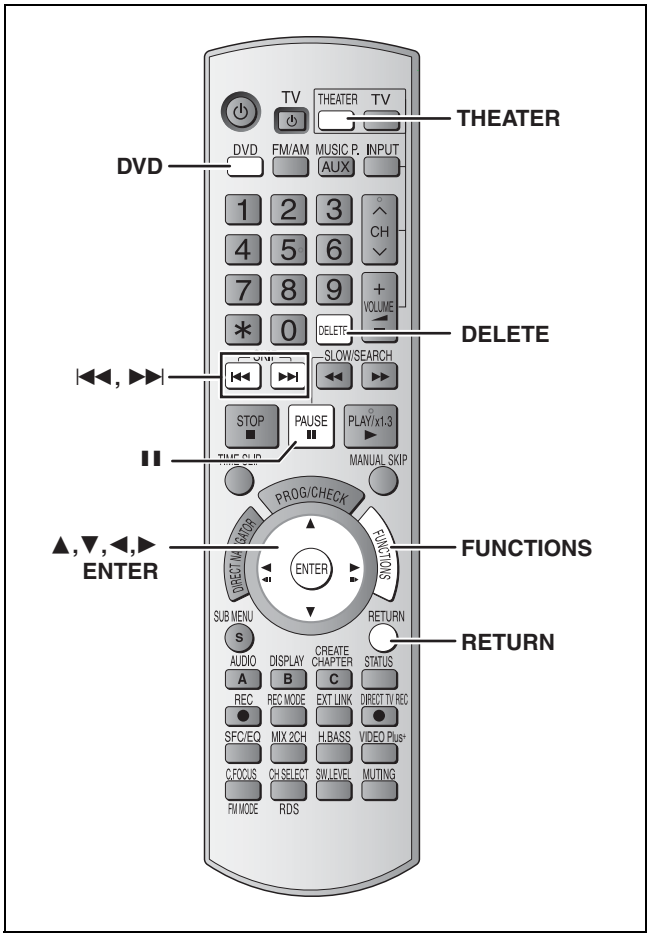
Preparation

- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.

Press [STATUS].

The display changes each time you press the button.





RAM -R -R DL -RW(V) +R +R DL +RW

- **A title cannot be restored once it is deleted.** Make certain before proceeding.
- You cannot delete while recording.

- RAM

When a recorded title is deleted the available disc space will increase by the amount deleted.

The available disc space increases if any of these is deleted.

Title 1	Title 2	.....	The last recorded title	The available space

- -RW(V) +RW

Disc space increases only when the last recorded title is deleted.

The available disc space does not increase if these are deleted.

When deleted, the available disc space increases.

Title 1	Title 2	.....	The last recorded title	The available space

- -R -R DL +R +R DL

Available space does not increase even after deletion.

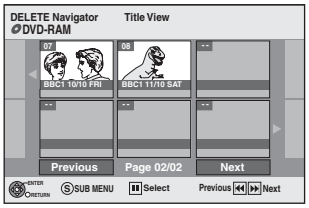
Using DELETE Navigator to delete titles

Preparation

- Turn on the television and select the appropriate video input to suit the connections to this unit.
- Turn the unit on.
- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.
- Insert the disc (➡ 24).
- RAM Release protection (➡ 44).

1 **While stopped**
Press [FUNCTIONS].

2 **Press [▲, ▼] to select "Delete" and press [ENTER].**



3 **Press [▲, ▼, ◀, ▶] to select the title and press [ENTER].**

To show other pages
Press [▲, ▼, ◀, ▶] to select "Previous" or "Next" and press [ENTER].
- You can also press [|◀◀, ▶▶|] to show other pages.

Multiple deleting
Select with [▲, ▼, ◀, ▶] and press [II]. (Repeat.)
- A check mark appears. Press [II] again to cancel.

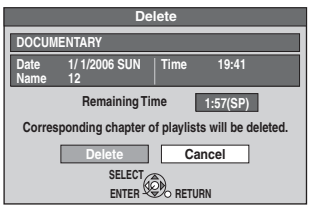
4 **Press [◀, ▶] to select "Delete" and press [ENTER].**

To return to the previous screen
Press [RETURN].

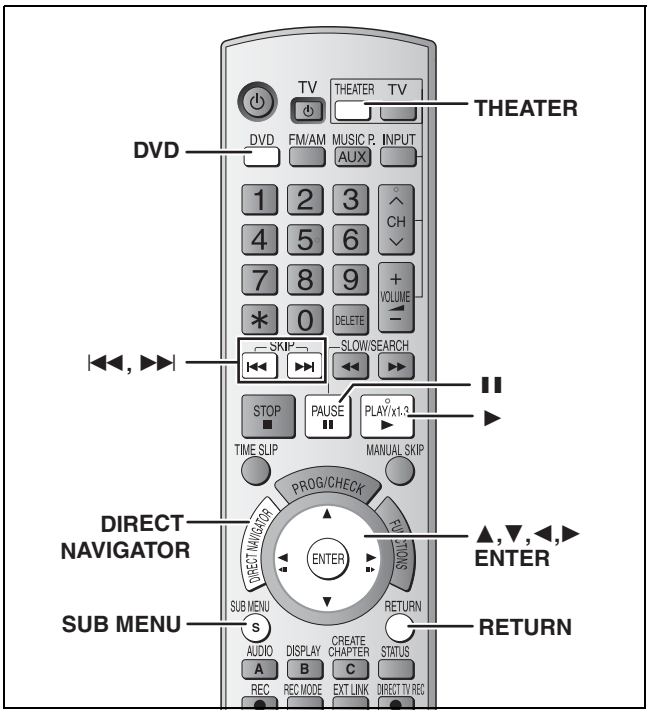
To exit the screen
Press [RETURN] several times.

Deleting titles during play

1 **During playback of the title you want to delete**
Press [DELETE].

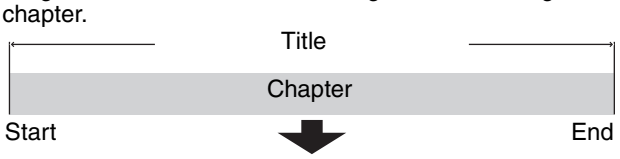


2 **Press [◀, ▶] to select "Delete" and press [ENTER].**

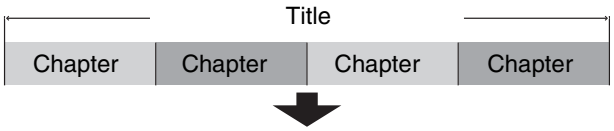


RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)

Title/Chapter
Programmes are recorded as a single title consisting of one chapter.



RAM You can divide a title into multiple chapters. Each section between the division points becomes a chapter. (➡ 31, 39, Create Chapter)



RAM You can change the order of chapters and create a playlist (➡ 40).

- -R -R DL -RW(V) +R +R DL Titles are divided into about 5-minute (+R +R DL 8-minute) chapters after finalizing (➡ 45).

- The maximum number of items on a disc:
  RAM -R -R DL -RW(V) +R +R DL +RW
  –Titles: 99 (+R +R DL +RW 49 titles)
  –Chapters: Approx. 1000 (+R +R DL +RW Approx. 250)
  (Depends on the state of recording.)

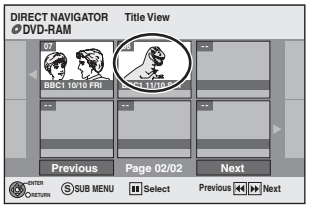
Note
- Once deleted or partially deleted, title/chapters cannot be restored to their original state. Make certain before proceeding.
- You cannot edit during recording.
- +RW You can create a Top Menu using “Create Top Menu” (➡ 45). Recording or editing on the disc may delete the menu. In that case, create the menu again.
- +R +R DL Management information is recorded in unused sections when you edit discs. The available space on these discs decreases each time you edit their contents.

Preparation
- Turn on the television and select the appropriate video input to suit the connection to this unit.
- Turn the unit on.
- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.
- Insert a disc (➡ 24).
- RAM Release disc or cartridge protection (➡ 44).

Editing titles/chapters and playing chapters

1 **During play or while stopped**
Press [DIRECT NAVIGATOR].

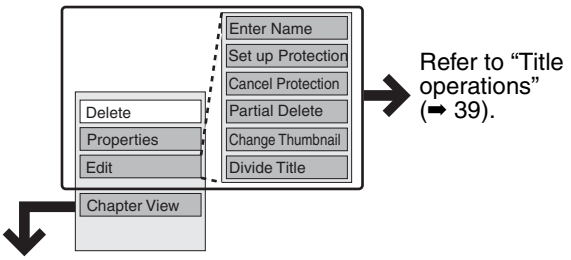
2 **Press [▲, ▼, ◀, ▶] to select the title.**



To show other pages
Press [▲, ▼, ◀, ▶] to select “Previous” or “Next” and press [ENTER].
- You can also press [|◀◀, ▶▶|] to show other pages.

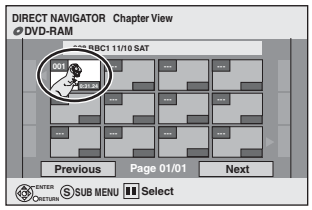
Multiple editing
Select with [▲, ▼, ◀, ▶] and press [❚❚]. (Repeat.)
- A check mark appears. Press [❚❚] again to cancel.

3 **Press [SUB MENU], then press [▲, ▼] to select the operation and press [ENTER].**
- If you select “Edit”, press [▲, ▼] to select the operation and press [ENTER].



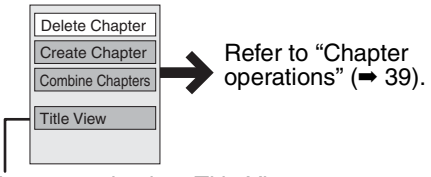
If you select “Chapter View” (➡ Step 4)

4 **Press [▲, ▼, ◀, ▶] to select the chapter.**
To start play ➡ Press [ENTER].
To edit ➡ Step 5.



- **To show other pages/Multiple editing (➡ above)**

5 **Press [SUB MENU], then press [▲, ▼] to select the operation and press [ENTER].**



- You can go back to Title View.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [DIRECT NAVIGATOR].

Title operations

After performing steps 1–3 (➡ 38)

Delete※

RAM -R -R DL -RW(V) +R +R DL +RW

Press [◄, ►] to select “Delete” and press [ENTER].

- **Once deleted, the recorded contents are lost and cannot be restored.** Make certain before proceeding.
- -R -R DL +R +R DL The available recording time on a disc does not increase when you delete titles.
- -RW(V) +RW Available recording space on a disc increases only when the last recorded title is deleted. It does not increase if other titles are deleted.

Properties

RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)

Information (e.g. time and date) is shown.

- Press [ENTER] to exit the screen.

Enter Name

RAM -R -R DL -RW(V) +R +R DL +RW

You can give names to recorded titles.

➡ 43, Entering text

Set up Protection※

Cancel Protection※

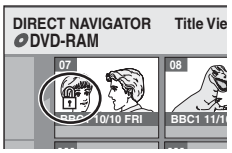
RAM +R +R DL +RW

If set, this will protect the title from accidental deletion.

Press [◄, ►] to select “Yes” and press [ENTER].

The lock symbol appears when the title is protected.

- When the title is protected, some items cannot be accessed. Release the protection to access the inaccessible items.



Partial Delete

RAM

(➡ below, “For your reference”)

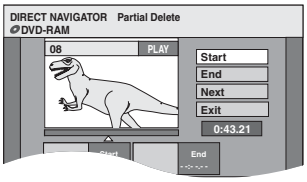
You can remove unnecessary part of the recording.

①**Press [ENTER] at the start point and end point of the section you want to delete.**

②**Press [▲, ▼] to select “Exit” and press [ENTER].**

- Select “Next” and press [ENTER] to delete other sections.

③**Press [◄, ►] to select “Delete” and press [ENTER].**



Change Thumbnail

RAM -R -R DL -RW(V) +R +R DL +RW

(➡ below, “For your reference”)

You can change the image to be shown as the thumbnail picture in the Title View.

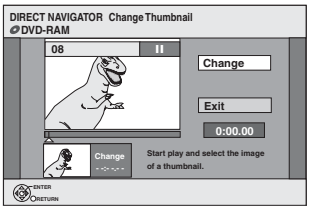
①**Press [►] (PLAY) to start play.**

②**Press [ENTER] when the image you want to use as a thumbnail is shown.**

To change the thumbnail

Restart play and press [▲, ▼] to select “Change”, then press [ENTER] at the point you want to use as the thumbnail.

③**Press [▲, ▼] to select “Exit” and press [ENTER].**



Divide Title

RAM

(➡ below, “For your reference”)

You can divide a title into two.

①**Press [ENTER] at the point you want to divide the title.**

②**Press [▲, ▼] to select “Exit” and press [ENTER].**

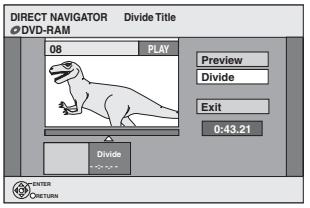
③**Press [◄, ►] to select “Divide” and press [ENTER].**

To confirm the division point

Press [▲, ▼] to select “Preview” and press [ENTER]. (The unit plays 10 seconds before and after the division point.)

To change the division point

Restart play and press [▲, ▼] to select “Divide”, then press [ENTER] at the point you want to divide.



Note

- The divided titles retain the title name and CPRM property (➡ 65) of the original title.
- Video and audio just before and after the dividing point may momentarily be cut out. Carry out the title division after checking it with “Preview” (➡ above).

※ Multiple editing is possible.

Chapter operations

After performing steps 1–5 (➡ 38)

Delete Chapter※

RAM

Press [◄, ►] to select “Delete” and press [ENTER].

- **Once deleted, the recorded contents are lost and cannot be restored.** Make certain before proceeding.
- To delete only the chapter dividing point use “Combine Chapters” (➡ below). The recorded contents are not deleted.

Create Chapter

RAM

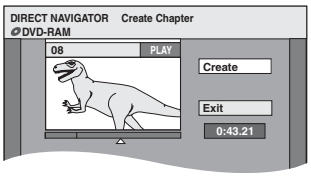
(➡ below, “For your reference”)

Select the point where you want to start a new chapter while viewing the title.

①**Press [ENTER] at the point you want to divide.**

- Repeat this step to divide at other points.

②**Press [▲, ▼] to select “Exit” and press [ENTER].**



Combine Chapters

RAM

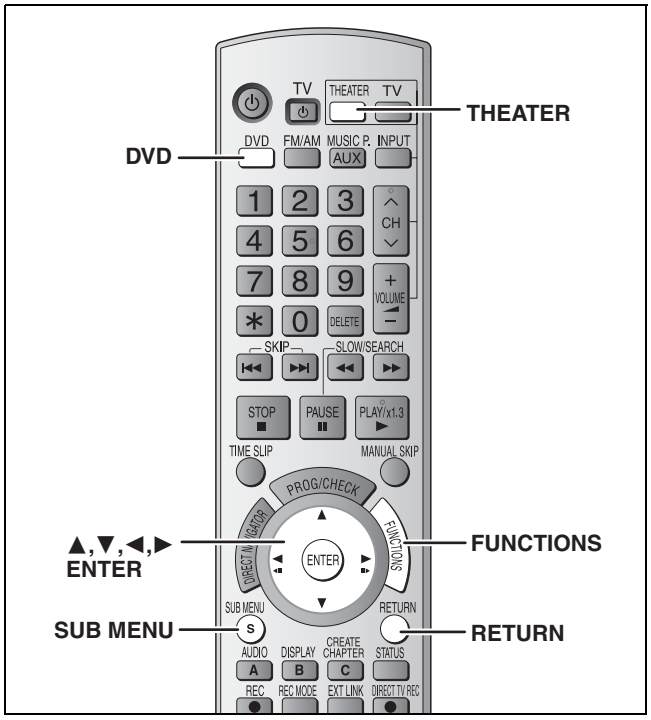
Press [◄, ►] to select “Combine” and press [ENTER].

- The selected chapter and following chapter are combined.

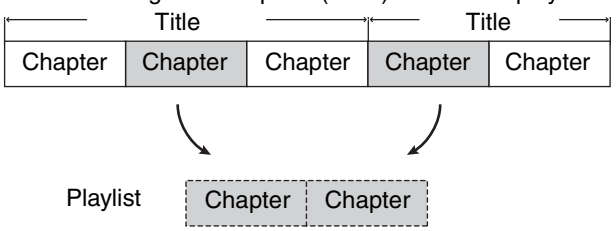
※ Multiple editing is possible.

For your reference

- Use search or Time Slip (➡ 31), to find the desired point.
- To skip to the start or end of a title, press [I◄◄] (start) or [►►I] (end).



You can arrange the chapters (➡ 38) to create a playlist.



- Editing playlists doesn't modify the recorded data. Playlists are not recorded separately so this doesn't use much capacity.
- You cannot create or edit playlists while recording.

RAM

- The maximum number of items on a disc:
  –Playlists: 99
  –Chapters in playlists: Approx. 1000 (Depends on the state of recording.)
- If you exceed the maximum numbers of items for a disc, all the items entered will not be recorded.

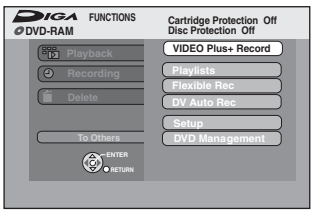
Preparation

- Turn on the television and select the appropriate video input to suit the connection to this unit.
- Turn the unit on.
- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.
- Insert a disc (➡ 24).
- **RAM** Release disc or cartridge protection (➡ 44).

Creating playlists

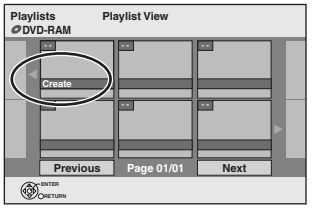
1 **While stopped**
Press [FUNCTIONS].

2 **Press [▲, ▼] to select "To Others" and press [ENTER].**



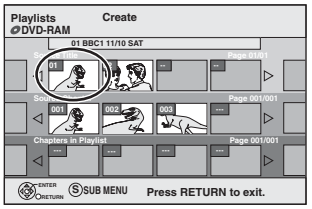
3 **Press [▲, ▼] to select "Playlists" and press [ENTER].**

4 **Press [▲, ▼, ◄, ►] to select "Create" and press [ENTER].**



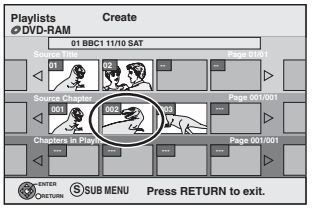
5 **Press [◄, ►] to select the source title and press [▼].**

- Press [ENTER] to select all the chapters in the title, then skip to step 7.



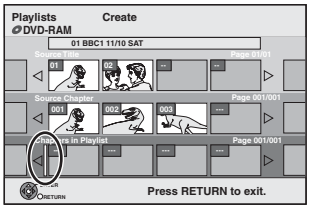
6 **Press [◄, ►] to select the chapter you want to add to a playlist and press [ENTER].**

- Press [▲] to cancel.



- You can also create a new chapter from the source title. Press [SUB MENU] to select "Create Chapter" and press [ENTER] (➡ 39, Create Chapter).

7 **Press [◄, ►] to select the position to insert the chapter and press [ENTER].**



- Press [▲] to select other source titles.
- Repeat steps 5–7 to add other chapters.

8 **Press [RETURN].**

All the selected scenes become the playlist.

To return to the previous screen
Press [RETURN].
To exit the screen
Press [RETURN] several times.

Editing and playing playlists/chapters

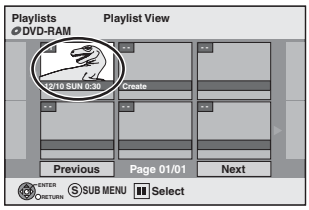
RAM
-RW(VR) (Play only)

1 **While stopped**
Press [FUNCTIONS].

2 **Press [▲, ▼] to select "To Others" and press [ENTER].**

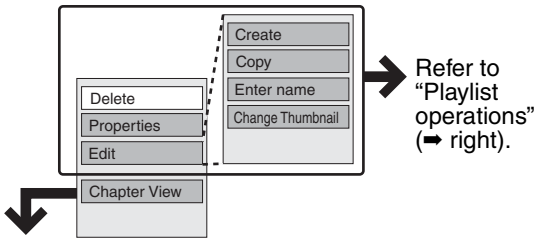
3 **Press [▲, ▼] to select "Playlists" and press [ENTER].**

4 **Press [▲, ▼, ◄, ►] to select the playlist.**
To start play ➡ Press [ENTER].
To edit ➡ Step 5.



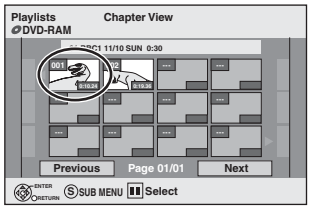
●**To show other pages/Multiple editing (➡ 38)**

5 **Press [SUB MENU], then press [▲, ▼] to select the operation and press [ENTER].**
●If you select "Edit", press [▲, ▼] to select the operation and press [ENTER].



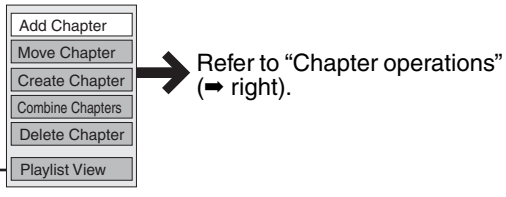
If you select "Chapter View" (➡ Step 6)

6 **Press [▲, ▼, ◄, ►] to select the chapter.**
To start play ➡ Press [ENTER].
To edit ➡ Step 7.



●**To show other pages/Multiple editing (➡ 38)**

7 **Press [SUB MENU], then press [▲, ▼] to select the operation and press [ENTER].**



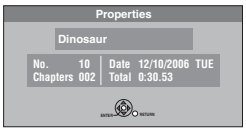
●You can go back to Playlist View.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [RETURN] several times.

Playlist operations

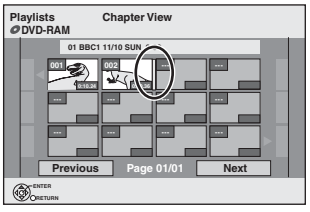
After performing steps 1–5 (➡ left)

Delete※ RAM	**Press [◄, ►] to select "Delete" and press [ENTER].** **Once deleted, the playlists are lost and cannot be restored.** Make certain before proceeding.
Properties RAM -RW(VR)	Playlist information (e.g. time and date) is shown. ●Press [ENTER] to exit the screen. 
Create RAM	➡ 40, Creating playlists, Steps 5–8
Copy※ RAM	**Press [◄, ►] to select "Copy" and press [ENTER].** ●The copied playlist becomes the newest one in the playlist view screen.
Enter Name RAM	➡ 43, Entering text
Change Thumbnail RAM	➡ 39, Change Thumbnail

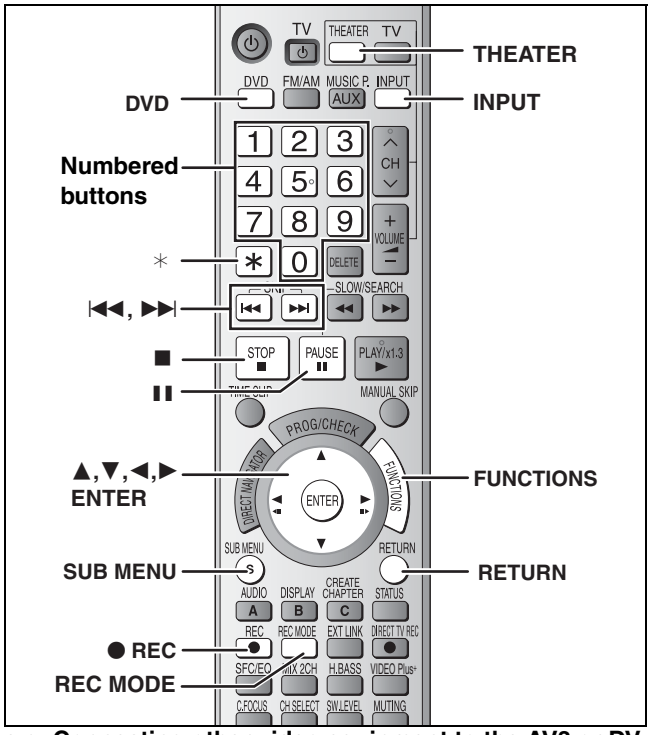
※ Multiple editing is possible.

Chapter operations

RAM
After performing steps 1–7 (➡ left)
●Editing chapters in a playlist does not modify the source titles and source chapters.

Add Chapter	➡ 40, Creating playlists, steps 5–8
Move Chapter	**Press [▲, ▼, ◄, ►] to select the position to insert the chapter and press [ENTER].** 
Create Chapter	➡ 39, Create Chapter
Combine Chapters	➡ 39, Combine Chapters
Delete Chapter※	➡ 39, Delete Chapter The playlist itself is deleted if you delete all the chapters in it.

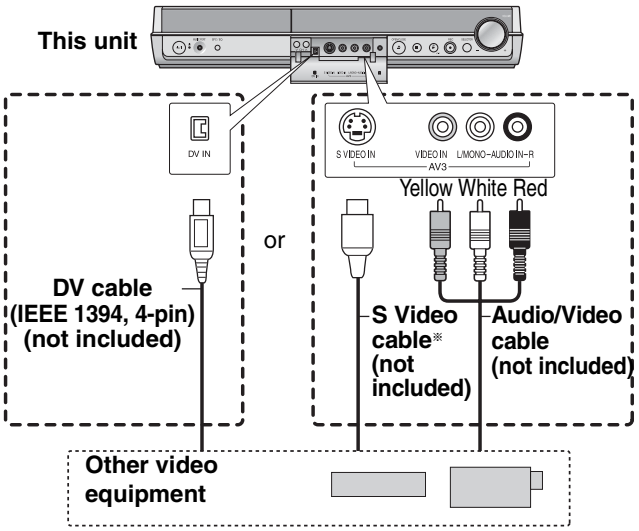
※ Multiple editing is possible.



e.g. Connecting other video equipment to the AV3 or DV IN terminals

You can also connect to the AV2 input terminals on the rear.

- Turn off the unit and other video equipment before connecting.



If the audio output of the other equipment is monaural

Connect to L/MONO on the AV3 input terminals at the front.

※ The S VIDEO terminal achieves a more vivid picture than the VIDEO terminal.

See also the notes "Important notes for recording" (➡ 22).

Preparation

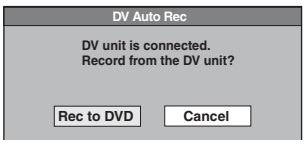
- Turn on the unit and connected equipment.
- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.
- Insert a disc (➡ 24).
- Press [REC MODE] to select the recording mode.
- When the output signal from the external equipment is NTSC, change "TV System" to "NTSC" in the Setup menu (➡ 54). This unit cannot record to discs containing both PAL and NTSC signals.
- To reduce noise in input from a video cassette recorder, set "AV-in NR" to "On" (➡ 36).
- **When recording from the unit's DV IN terminal**
  Select the type of audio recording from "Audio Mode for DV Input" in the Setup menu (➡ 51).
  When recording from DV equipment (e.g. digital video camcorder), you can record audio/video recordings from DV tape only.

DV automatic recording (DV Auto Rec)

RAM -R -RW(V) +R +RW

RAM Programmes are recorded as a title while at the same time chapters are created at each break in the images and the playlist is created automatically.

When "DV Auto Rec" screen is displayed.



Press [◀, ▶] to select "Rec to DVD" and press [ENTER]. You can proceed to step 4.

1 **While stopped**
Press [FUNCTIONS].

2 **Press [▲, ▼] to select "To Others" and press [ENTER].**

3 **Press [▲, ▼] to select "DV Auto Rec" and press [ENTER].**

4 **Press [◀, ▶] to select "Rec" and press [ENTER].**
Recording starts.

When recording finishes

The confirmation screen appears. Press [ENTER] to finish DV automatic recording.

To stop recording

Press [■]. The confirmation screen appears. Press [ENTER].

Note

- Only one piece of DV equipment (e.g. digital video camcorder) can be connected to the unit via the DV IN terminal.
- It is not possible to operate the unit from the connected DV equipment.
- The DV IN terminal on this unit is for use with DV equipment only. (It cannot be connected to a computer, etc.)
- The DV equipment name may not be shown correctly.
- Depending on the DV equipment, the images or audio may not be input properly.
- The date and time information on the tape of the DV equipment will not be recorded.
- You cannot record and play simultaneously.

If the DV automatic recording function does not work properly, check the connections and DV equipment settings, and turn the unit off and back on.
If that does not work, follow the instructions for manual recording (➡ below).

Manual recording

RAM -R -R DL -RW(V) +R +R DL +RW

1 **While stopped**
Press [INPUT] to select the input channel for the equipment you have connected.
e.g. If you have connected to AV3 input terminals, select "AV3".

2 **Start play on the other equipment.**

3 **When you want to start recording**
Press [● REC].
Recording starts.

- Using Flexible Recording (➡ 25), you can record the content of a video cassette (approx. 1–8 hours) to a 4.7 GB disc with the best possible quality of recording without wasting disc space.

To skip unwanted parts

Press [❚❚] to pause recording. (Press again to restart recording.)

To stop recording

Press [■].

Almost all videos and DVD-Video on sale have been treated to prevent illegal copying. Any software that has been so treated cannot be recorded using this unit.

Refer to the control reference on page 42.

RAM -R -R DL -RW(V) +R +R DL +RW

You can give names to recorded titles, etc.

The maximum number of characters:

RAM	Characters
Title	64 (44※)
Playlist	64
Disc	64

※ Title name for timer recording

-R -R DL -RW(V) +R +R DL +RW	Characters
Title	44
Disc	40

If a name is long, parts of it may not be shown in some screens.

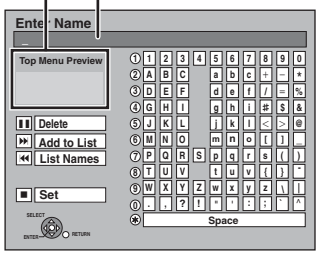
1 Show Enter Name screen.

Title (timer recording)	(➡ 26, 27, Step 3)
Title	(➡ 38, Step 3)
Playlist	(➡ 41, Step 5)
Disc	(➡ 44, Providing a name for a disc)

-R -R DL -RW(V) +R +R DL +RW

If you enter a long name, only part of it is shown in the Top Menu after finalization (➡ 45). When entering a title name, the name that will appear in the Top Menu can be previewed in "Top Menu Preview" window.

Name field: shows the text you have entered



2 Press [▲, ▼, ◄, ►] to select a character and press [ENTER].

Repeat this step to enter other characters.

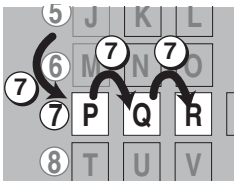
●To delete a character

Press [▲, ▼, ◄, ►] to select the character in the name field and press [❚❚].

●Using the numbered buttons to enter characters

e.g. entering the letter "R"

① **Press [7] to move to the 7th row.**
②**Press [7] twice to highlight "R".**
③**Press [ENTER].**



●To enter a space

Press [✳] and press [ENTER].

●To add/recall names (➡ below)

3 Press [■] (Set).

Returns to the previously display screen.

To end partway

Press [RETURN].
Text is not saved.

■ To add a name

You can add frequently used names and recall them later.
Maximum number of added names: 20
Maximum number of characters per name: 20
After entering the name (➡ left, steps 1–2).

1 Press [▶▶|] while the name to be added is shown in the name field.
2 Press [◄, ►] to select "Add" and press [ENTER].

To cancel adding word

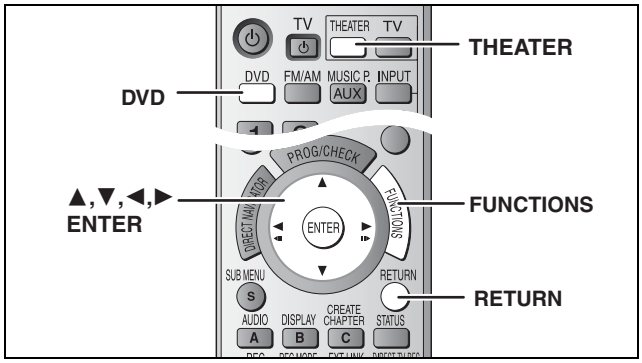
Press [RETURN].

■ To recall an added name

1 Press [|◀◀].
2 Press [▲, ▼, ◄, ►] to select the name to be recalled and press [ENTER].

■ To delete an added name

1 Press [|◀◀].
2 Press [▲, ▼, ◄, ►] to select the name to be deleted and press [SUB MENU].
3 Press [ENTER].
4 Press [◄, ►] to select "Delete" and press [ENTER].
5 Press [RETURN].



Common procedures

Preparation
- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.
- Insert a disc (➡ 24).
- RAM Release protection (➡ below).

1 **While stopped**
Press [FUNCTIONS].

2 **Press [▲, ▼] to select "To Others" and press [ENTER].**

3 **Press [▲, ▼] to select, "DVD Management" and press [ENTER].**
Select which step 4 to perform depending on what you want to do next.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [RETURN] several times.

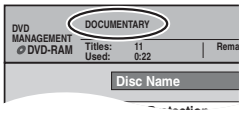
Providing a name for a disc

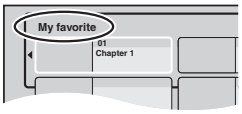
RAM -R -R DL -RW(V) +R +R DL +RW

After performing steps 1–3 (➡ above)

4 **Press [▲, ▼] to select "Disc Name" and press [ENTER].**

➡ 43, Entering text
- The disc name is displayed in the DVD Management window.
- -R -R DL -RW(V) +R +R DL With a finalized disc, the name is displayed on the Top Menu.
- +RW The disc name is displayed only if you play the disc on other equipment.





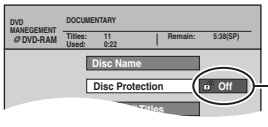
Setting the protection

RAM

After performing steps 1–3 (➡ above)

4 **Press [▲, ▼] to select "Disc Protection" and press [ENTER].**

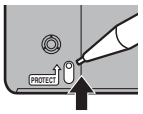
5 **Press [◄, ►] to select "Yes" and press [ENTER].**



The lock symbol appears closed when the disc is write-protected.

Cartridge-protection

RAM (with a cartridge)
With the write-protect tab in the protect position, play automatically starts when inserted in the unit.



Deleting all titles and playlists— Delete all titles

RAM

After performing steps 1–3 (➡ left)

4 **Press [▲, ▼] to select "Delete all titles" and press [ENTER].**

5 **Press [◄, ►] to select "Yes" and press [ENTER].**

6 **Press [◄, ►] to select "Start" and press [ENTER].**
A message appears when finished.

7 **Press [ENTER].**

Note
- **Once deleted, the recorded contents are lost and cannot be restored.** Make certain before proceeding.
- Deleting all video titles will result in all playlists also being deleted.
- Delete does not work if one or more titles are protected.

Deleting all the contents of a disc— Format Disc

RAM -RW(V) +RW -RW(VR) +R +R DL (New disc only)

Note

Formatting deletes all contents (including computer data), and they cannot be restored. Check carefully before proceeding. The contents are deleted when you format it even if you have set protection.

After performing steps 1–3 (➡ left)

4 **Press [▲, ▼] to select, "Format Disc" and press [ENTER].**

5 **Press [◄, ►] to select "Yes" and press [ENTER].**

6 **Press [◄, ►] to select "Start" and press [ENTER].**
A message appears when formatting is finished.

Note
- **Do not disconnect the AC mains lead while formatting.** This can render the disc unusable.
- Formatting normally takes a few minutes, however it may take up to a maximum of 70 minutes (RAM).

7 **Press [ENTER].**

Note
- -R -R DL CD Formatting cannot be performed on the disc.
- -RW(V) -RW(VR) You can format only as DVD-Video format on this unit.
- When a disc has been formatted using this unit, it may not be possible to use it on any other equipment.

To stop formatting RAM
Press [RETURN].
- You can cancel formatting if it takes more than 2 minutes. The disc must be reformatted if you do this.

Selecting whether to show the Top Menu first–Auto-Play Select

-R -R DL -RW(V) +R +R DL +RW

You can select whether to show the top menu after finalizing. Make selections before finalizing the disc.

After performing steps 1–3 (➡ 44)

4 Press [▲, ▼] to select "Auto-Play Select" and press [ENTER].

5 Press [▲, ▼] to select the item and press [ENTER].

Top Menu: The top menu appears first.
Title 1: The disc content is played without displaying the top menu.

Enabling discs to be played on other equipment–Finalize

-R -R DL -RW(V) +R +R DL

Finalize the disc so you can play it on other DVD equipment. The equipment must be able to play finalized discs. To check compatibility with other equipment, refer to page 6.
Make selections from "Auto-Play Select" (➡ above) before finalizing the disc.

After performing steps 1–3 (➡ 44)

4 Press [▲, ▼] to select "Finalize" and press [ENTER].

5 Press [◄, ►] to select "Yes" and press [ENTER].

6 Press [◄, ►] to select "Start" and press [ENTER].

- Finalizing starts. You cannot cancel finalizing.
- Finalizing can take a few minutes, up to a maximum of 15 minutes, depending on the remaining space on the disc.
  (-R DL +R DL up to 60 minutes.)

Note

Do not disconnect the AC mains lead while finalizing. This will render the disc unusable.

7 Press [ENTER].

After finalizing

- -R -R DL +R +R DL The disc becomes play-only and you can no longer record or edit.
- -RW(V) You can record and edit the disc after formatting (➡ 44) although it becomes play-only after finalizing.
- Titles are divided into about 5-minute (+R +R DL 8-minute) chapters after finalizing. This time varies greatly depending on the condition and mode of recording.
- There is a pause of several seconds between titles and chapters during play.

- You cannot finalize discs recorded on other manufacturers' equipment.
- Discs finalized on this unit may not be playable on other players due to the condition of the recording.
- When finalizing a high-speed recording compatible disc, it may take longer than displayed on the confirmation screen (approximately four times).

Creating Top Menu—Create Top Menu

+RW

+RW discs contain no Top Menu data. Top Menu is a convenient function. We recommend you create the menu before playing a +RW disc on other equipment.
Make selections from "Auto-Play Select" (➡ left) before creating top menu.
You cannot use Top Menu for playing on this unit.

After performing steps 1–3 (➡ 44)

4 Press [▲, ▼] to select "Create Top Menu" and press [ENTER].

5 Press [◄, ►] to select "Yes" and press [ENTER].

6 Press [◄, ►] to select "Start" and press [ENTER].

Creating Top Menu starts. You cannot cancel creating.
Creating Top Menu can take a few minutes.

7 Press [ENTER].

Recording or editing on the disc may delete the menu. In that case, create the menu again.

Enabling the second layer on DL (dual layer on single side) discs to be recordable –Close First Layer

-R DL +R DL

DVD-R DL and +R DL discs have two layers of recording surface on one side. This unit does not offer seamless recording on two layers. Recording stops when space on the first layer become full. You must close the first layer to start recording on the second layer.
Closing makes the first layer unavailable for recording (editing is still available). You cannot cancel closing. Make certain before proceeding.

After performing steps 1–3 (➡ 44)

4 Press [▲, ▼] to select "Close First Layer" and press [ENTER].

5 Press [◄, ►] to select "Yes" and press [ENTER].

6 Press [◄, ►] to select "Start" and press [ENTER].

Closing the layer starts. You cannot cancel closing.
Closing the layer can take several minutes, up to a maximum of 30 minutes, depending on the remaining space on the first layer.

Note

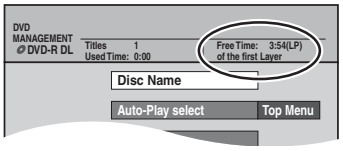
Do not disconnect the AC mains lead while closing the layer. This will render the disc unusable.

7 Press [ENTER].

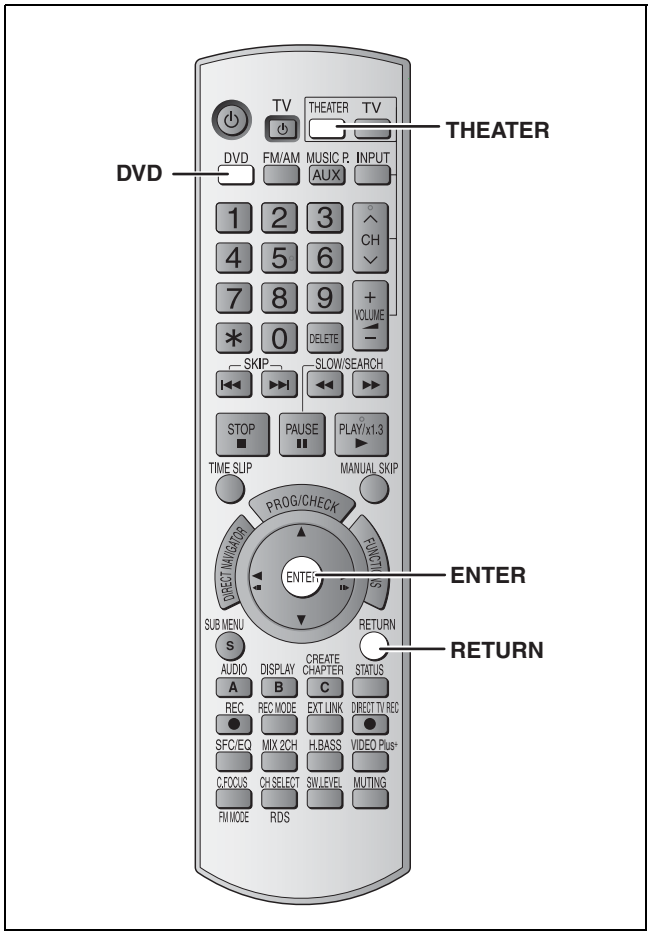
- You cannot close the first layer when it has no recording.
- By closing the layer, you can record or edit discs that have been recorded on the second layer by other equipment.

■ To confirm the layer you can record

You can confirm the remaining recording time on the layer you can record.



Child Lock



The Child Lock deactivates all buttons on the unit and remote control. Use it to prevent other people from operating the unit.

Preparation

- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.

Press and hold [ENTER] and [RETURN] simultaneously until "X HOLD" appears on the unit's display.

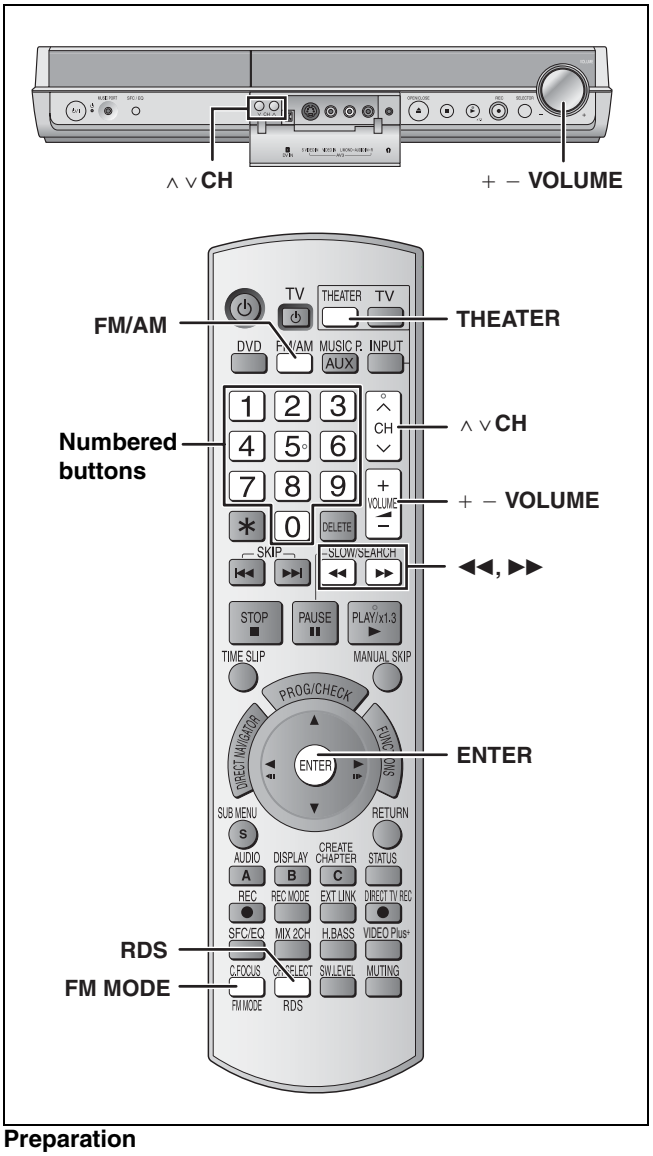
e.g. Display

If you press a button while the Child Lock is on, "X HOLD" appears on the unit's display and operation is impossible.

To cancel the Child Lock

Press and hold [ENTER] and [RETURN] simultaneously until "X HOLD" disappears.

The radio



Preparation

- Turn off TV while using radio since noise may occur.
- Press [THEATER] to switch the remote control to operate this unit.

Tuning

1 Press [FM/AM] to select the "FM" or "AM".

2 Press [◀◀] or [▶▶] to select the frequency of the required station.

e.g. Display

TUNED: Displayed when a radio station is tuned.
ST: Displayed when a stereo FM broadcast is being received.

Press and hold [◀◀] or [▶▶] until the frequency starts scrolling to start automatic tuning. Tuning stops when a station is found.

3 Adjust the volume with [+ − VOLUME].

■ If noise is excessive

Press [FM MODE].

Each time you press the button:

FM: Changes between stereo and forced monaural. ["ST" (stereo) or "MONO" (monaural) lights up in the display.]

AM: BP1→ BP2→ BP3→ BP4 (BP=Beat Proof)

↑————————————————————┘

Select between BP1 and BP4 that receives good reception.

The FM mode is cancelled when you change the frequency.

Presetting the channel

Preset channels to make selection simple.

Up to 30 stations can each be set in the FM and AM bands.

1 Tune to the station (➡ 46).

2 Press [ENTER].

3 While "MEMO" is flashing on the display

Press the numbered buttons or [∧ ∨ CH] to select a channel and press [ENTER].

e.g. "2": [0] ➡ [2]
"12": [1] ➡ [2]

e.g. Display

The station occupying a channel is erased if another station is preset in that channel.

Presetting stations automatically

Up to 30 stations can each be set in the FM and AM bands.

1 Press [FM/AM] to select the "FM" or "AM".

2 Press [◀◀] or [▶▶] to tune to the frequency where you want to begin presetting.

Set the channel reception to FM 87.50 MHz or AM 522 kHz if you want automatic presetting to start from the lowest frequency.

3 Press and hold [ENTER].

Release the button when "AUTO FM" or "AUTO AM" is lit on the display.

This unit presets the stations it can receive into the channels in ascending order.

- It automatically stops searching when 30 stations are preset to the last.
- "SET OK" is displayed when the stations are set. The last station to be set is then played.
- "ERROR" is displayed when automatic presetting is unsuccessful. Preset the channels manually (➡ above).

- The unit of display is MHz for FM radio and kHz for AM radio when the selector is in FM/AM mode.

Selecting the preset channels

1 Press [FM/AM] to select the "FM" or "AM".

2 Press the numbered buttons or [∧ ∨ CH] to select the channel.

e.g. "2": [0] ➡ [2]
"12": [1] ➡ [2]

e.g. Display

Note

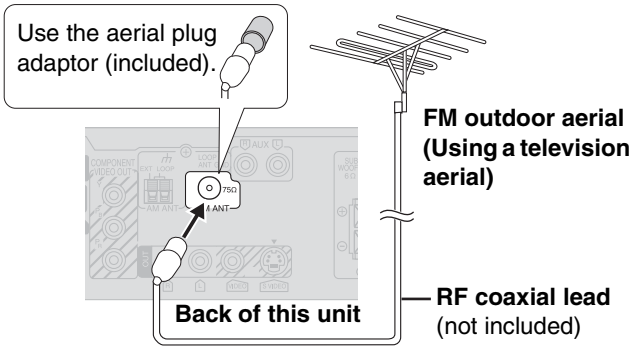
If there is nearby electrical interference during auto tuning the frequency may come to a halt without locating a channel. Turn off the power of the nearby electrical equipment.

■ Use FM outdoor aerial if radio reception is poor.

- Disconnect the FM indoor aerial.
- The aerial should be installed by a competent technician.

Note

- Disconnect the outdoor aerial when the unit is not in use.
- Do not use the outdoor aerial during an electrical storm.


Use the aerial plug adaptor (included).
FM outdoor aerial (Using a television aerial)
Back of this unit
RF coaxial lead (not included)

RDS broadcasting

The unit can display the text data transmitted by the radio data system (RDS) available in some areas.

If the station you are listening to is transmitting RDS signals, "RDS" will light up on the display.

Press [RDS].

Each time you press the button:

PS → PTY → Frequency display

↑————————————┘

When "PS" or "PTY" is selected, one of these icons will appear on the lower portion of the display on the unit.

PTY displays			
NEWS	VARIED	FINANCE	COUNTRY
AFFAIRS	POP M	CHILDREN	NATIONAL
INFO	ROCK M	SOCIAL A	OLDIES
SPORT	M.O.R. M※	RELIGION	FOLK M
EDUCATE	LIGHT M	PHONE IN	DOCUMENT
DRAMA	CLASSICS	TRAVEL	TEST
CULTURE	OTHER M	LEISURE	ALARM
SCIENCE	WEATHER	JAZZ	

※"M.O.R. M"=Middle of the road music

Note

RDS displays may not be available if reception is poor.

Sound effect

Refer to control reference on page 49.

Changing the sound quality

Sound Field Control (SFC)

Available with:
- **2-channel sound**

Using the built-in sound quality settings, you can create a 5.1 channel effect while using 2-channel audio. This does not work with multi-channel audio.

Press [SFC/EQ] several times to select the desired setting.

Each time you press the button:
(Settings can be confirmed on the display or the television screen.)
FLAT ⟶ **MOVIE** ⟶ **SPORTS** ⟶ **MUSIC**
↑ Equalizer (EQ) setting (➡ below) ←┘

e.g. Display

FLAT: Cancel (no effect is added).
MOVIE: Use this mode when playing movie software.
SPORTS: Simulates sound to make you feel like you are at sports event.
MUSIC: Adds surround effects to stereo source.

- We don't recommend this setting when listening to AM radio broadcasts.
- This is ineffective with monaural audio.
- To check the current setting, press [SFC/EQ].

Equalizer (EQ)

Available with:
- **Multi-channel sound**
- **2-channel or monaural sound**

Using the built-in sound quality settings, you can change the tone of the front 2 channels.

Press [SFC/EQ] several times to select the desired setting.

Each time you press the button:
(Settings can be confirmed on the display or the television screen.)
FLAT ⟶ Sound Field Control (SFC) setting* (➡ above)
↑ **MANUAL** ⟵ **SOFT** ⟵ **CLEAR** ⟵ **HEAVY** ←┘
*Not displayed during multi-channel audio playback.

e.g. Display

FLAT: Cancel (no effect is added).
HEAVY: Adds punch to rock.
CLEAR: Clarifies higher sounds.
SOFT: For background music.
MANUAL: Adjust the bass and treble with manual equalizer.
BASS: Press [◀]⟶[▲ ▼] −6 to +6 (in 2 units)
TREBLE: Press [▶]⟶[▲ ▼] −6 to +6 (in 2 units)

- To check the current setting, press [SFC/EQ].
- The set level for "BASS" and "TREBLE" remains intact. (Even after the unit is turned off.)

Center Focus

Available with:
- **Multi-channel sound** (Discs where the dialogue is recorded in the center channel)

You can make the sound of the center speaker seem like it is coming from within the television.

Press [C.FOCUS].

Each time you press the button:
(Settings can be confirmed on the display or the television screen.)
CENTER FOCUS ON⟷CENTER FOCUS OFF

e.g. Display

- **RT70** This cannot be set while "Surround Enhancer" (➡ below) is set to "ON" ("ERROR" is displayed in the display window). Please set this once "Surround Enhancer" is set to "OFF".

Enhancing the bass sound–H.Bass

Available with:
- **Multi-channel sound**
- **2-channel or monaural sound**

You can enhance low-frequency sound so that heavy bass sound can be heard clearly, even if the acoustics of your room are not optimal.

Press [H.BASS].

Each time you press the button:
(Settings can be confirmed on the display or the television screen.)
H.BASS ON⟷H.BASS OFF

e.g. Display

- The setting you make is retained.

RT70 Enhancing surround sound–Surround Enhancer

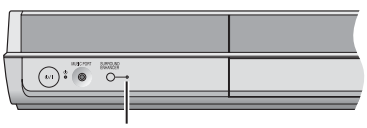
Available with:
- **Multi-channel sound**
- **2-channel or monaural sound**

Automatically adjusts each speaker to enhance the surround sound effect of multi-channel audio.
When playing two-channel audio, the audio of the L/R front speakers is also output through the L/R surround speakers (audio is not output from the center speaker) and creates a surround sound effect.

Press [SRD ENH].

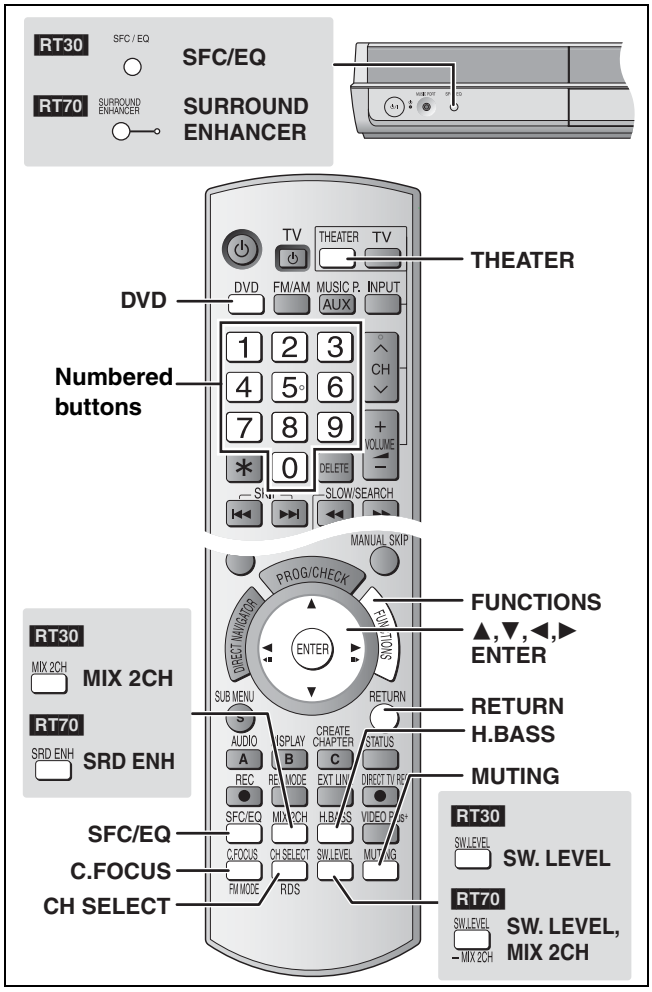
This unit: Press [SURROUND ENHANCER].

Each time you press the button:
(Settings can be confirmed by the indicator or on the television screen.)
SRD ENHANCER ON⟷SRD ENHANCER OFF



Lights up

Note
- When headphones are in use (➡ 56), only "Equalizer (EQ)" can be set. [If headphones are plugged in while the sound effect settings other than "Equalizer (EQ)" are set to on, the settings are forcibly cancelled.]
- You may experience a reduction in sound quality when these sound effects are used with some sources. If this occurs, turn the sound effects off.



Dolby Digital and DTS

- Dolby Digital and DTS are digital encoding systems used on DVD to carry surround sound. Both were originally developed for use in cinemas.
- This unit automatically recognizes and decodes these systems.

Software encoded with Dolby Digital can be identified with this mark.

DOLBY DIGITAL

Software encoded with DTS can be identified with this mark.

DIGITAL dts SURROUND

Play a Dolby Digital or DTS source.

The Dolby Digital or DTS indicator lights.

e.g. Display

e.g. Display

■ To down-mix Dolby Digital or DTS (multiple-channel) signals to 2 channels

RT30 Press [MIX 2CH].

RT70 Press and hold [MIX 2CH].

e.g. Display

- **To cancel**

  RT30 Press [MIX 2CH] again.

  RT70 Press and hold [MIX 2CH] again.

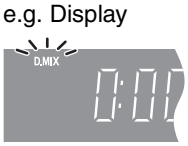
- RT70 This cannot be set while "Surround Enhancer" (➡ 48) is set to "ON" ("ERROR" is displayed in the display window). Please set this once "Surround Enhancer" is set to "OFF".

When "D.MIX" flashes on the display

DVD-A

The DVD-Audio contains multiple-channel signals that cannot be down-mixed.

e.g. Display



Muting the sound

Press [MUTING].

(Settings can be confirmed on the display or the television screen.)

"MUTING" flashes on the unit's display.

e.g. Display

To cancel

- Press [MUTING] again or reduce the volume to minimum "VOL 0", then raise it to the required level.
- Muting is cancelled when you switch the unit to standby.

■ To listen to sound from this unit through your television's speakers

Connect the television and the AV1 terminal on this unit using a 21-pin Scart lead.

Press and hold [MUTING] until "A1 MUTE OFF" appears on the unit's display.

The audio is output from both the speakers and the television.

To mute sound from this unit's speakers (➡ above)

- To cancel, press and hold [MUTING] and select "A1 MUTE ON".

Adjusting the subwoofer level

Press [SW.LEVEL].

e.g. Display

Each time you press the button:

(Settings can be confirmed on the display or the television screen.)

SUB WOOFER 1→SUB WOOFER 2→SUB WOOFER 3
↑←SUB WOOFER 4←┘

- The setting you make is retained.
- This cannot be set when headphones are connected.

Speaker level adjustments

Adjust the level of the speakers so they are the same apparent level as the front speakers where you would normally be sitting and listening.

Preparation

- Press [DVD] to select the DVD drive.
- Turn off the other sound effects.

When stopped or playing discs with 2 channel or monaural audio

You can adjust the balance of the front speakers.

- You can also adjust the L/R Surround speakers while "Sound Field Control (SFC)" or "Surround Enhancer (RT70)" is set to on. Please perform the following "When playing Multi-channel discs" operations.

1 Press [CH SELECT].

2 Press [◀, ▶] to adjust the "L", "R" balance.

When playing Multi-channel discs

1 Press [CH SELECT].

2 While the screen above is being displayed
Press [CH SELECT] to select the speaker.

L, R→Cch→RSch→LSch→SWch
↑←┘

SW: Subwoofer

- You can only adjust SW if there is output from the subwoofer channel.

3 Press [▲] (to increase) or [▼] (to decrease).

L, R: Press [◀, ▶] to adjust the "L", "R" balance.
C, RS, LS: −6 dB to +6 dB
SW: −6 dB to +6 dB

Changing the unit's settings

Refer to the control reference on page 49.

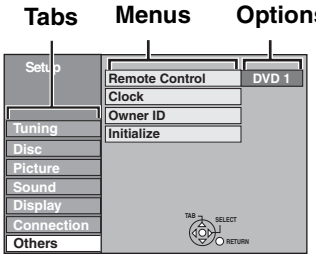
Common procedures

Preparation
- Press [THEATER] to switch the remote control to operate this unit.
- Press [DVD] to select the DVD drive.

1 **While stopped**
Press [FUNCTIONS].

2 **Press [▲, ▼] to select "To Others" and press [ENTER].**

3 **Press [▲, ▼] to select "Setup" and press [ENTER].**



4 **Press [▲, ▼] to select the tab and press [►].**

5 **Press [▲, ▼] to select the menu and press [ENTER].**

6 **Press [▲, ▼] to select the option and press [ENTER].**

To return to the previous screen
Press [RETURN].

To exit the screen
Press [RETURN] several times.

Note
There may be differences in operation methods. If this happens, follow the on-screen instructions for the operation.

Summary of settings

The settings remain intact even if you switch the unit to standby.

Tabs	Menus	Options (Boxed items are the factory presets.)
Tuning	**Manual (➡ 53)**	
	Auto-Setup Restart (➡ 54)	
	Download from TV (➡ 54)	
Disc	**Settings for Playback** ● Press [ENTER] to show the following settings.	
	Ratings Set a ratings level to limit DVD-Video play. Follow the on-screen instructions. Enter a 4-digit password with the numbered buttons when the password screen is shown. ● Do not forget your password.	● **8 No Limit**: All DVD-Video can be played. ● 1 to 7: Prohibits play of DVD-Video with corresponding ratings recorded on them. ● 0 Lock All: Prohibits play of all DVD-Video. ● Unlock Recorder ● Change Password ● Change Level ● Temporary Unlock
	DVD-Audio Video mode Playback Select "On" to play DVD-Video content on some DVD-Audio.	● On: The setting returns to "Off" when you change the disc or turn the unit off. ● **Off**
	Soundtrack DVD-V ● Some discs start in a certain language despite any changes you make here. ● Enter a code (➡ 55) with the numbered buttons when you select "Other ✳✳✳✳". When the selected language is not available on the disc, the default language is played. There are discs where you can only switch the language from the menu screen (➡ 30).	● **English** ● German ● French ● Italian ● Spanish ● Original: The original language of each disc will be selected. ● Other ✳✳✳✳
	Subtitle DVD-V	● **Automatic**: If the language selected for "Soundtrack" is not available, subtitles of that language will automatically appear if available on that disc. ● English ● German ● French ● Italian ● Spanish ● Other ✳✳✳✳
	Menus DVD-V	● **English** ● German ● French ● Italian ● Spanish ● Other ✳✳✳✳
	Settings for Recording ● Press [ENTER] to show the following settings.	
	Recording time in EP mode Select the maximum number of hours for recording in EP mode (➡ 23, Recording modes and approximate recording times).	● EP (6 Hours): You can record for 6 hours on an unused 4.7 GB disc. ● **EP (8 Hours)**: You can record for 8 hours on an unused 4.7 GB disc.

Tabs	Menus	Options (Boxed items are the factory presets.)
Picture	**Comb Filter** Select the picture sharpness when recording. The setting is fixed with "On" if you set "TV System" to "NTSC" (➡ below).	● On: Select it to record clear picture. ● **Off**:Normally, use this setting.
	Still Mode Select the type of picture shown when you pause play (➡ 65, Frames and fields).	● **Automatic** ● Field: Select if jittering occurs when "Automatic" is selected. (The picture is coarser.) ● Frame:Select if small text or fine patterns cannot be seen clearly when "Automatic" is selected. (The picture is clearer and finer.)
Sound	**Dynamic Range Compression** DVD-V (Dolby Digital only) Change the dynamic range for late night viewing.	● On ● **Off**
	Bilingual Audio Selection -R -R DL -RW(V) +R +R DL +RW Select whether to record the main or secondary audio type when recording to a disc.	● **M 1** ● M 2 You cannot select this when recording from an external source (except from DV equipment connected to this unit's DV IN terminal). Select the audio on the other equipment.
	Audio Mode for DV Input You can select the kind of audio when recording from the unit's DV IN terminal (➡ 42).	● **Stereo 1**:Records audio (L1, R1). ● Stereo 2:Records added audio such as narration (L2, R2) subsequent to original recording. ● Mix: Records both Stereo 1 and Stereo 2. -R -R DL -RW(V) +R +R DL +RW When recording bilingual broadcast, select the type of audio in advance from "Bilingual Audio Selection" (➡ above).
	Speaker (➡ 52) Adjust the speaker level or set the delay time for your center and surround speakers.	**Delay time** ●Center: **0.0**/1.0/2.0/3.0/4.0/5.0 ms ●Surround (L/R): 0.0/**5.0**/10.0/15.0 ms **Speaker level** ●Center: –6 dB to +6 dB (Factory preset: 0 dB) ●Surround (L/R): –6 dB to +6 dB (Factory preset: 0 dB)
Display	**On-Screen Messages** Choose whether to show status messages automatically.	● **Automatic** ● Off
	Grey Background Select "Off" if you do not want to have the unit show the grey background when tuner reception is weak.	● **On** ● Off
	FL Display Changes the brightness of the unit's display.	● **Bright** ● Dim:
Connection	**TV Aspect (➡ 20)**	● **16:9** ●4:3 ●Letterbox
	Progressive (➡ 20) This setting is fixed with "Off" if you set "AV1 Output" to "RGB 1 (without component)" or "RGB 2 (without component)" (➡ below).	● On ●**Off**
	TV System (➡ 54)	● **PAL** ●NTSC
	AV1 Output Selects the output from the AV1 terminal. Select "RGB 1 (without component)" or "RGB 2 (without component)" for RGB output. Select "Video (with component)" or "S Video (with component)" for component output (progressive output). Set according to the signal and terminal of the connected TV.	● Video (with component): Select when a TV is connected that can receive a composite signal. ● S Video (with component): Select when a TV is connected that can receive an S Video signal. ● RGB 1 (without component): Select when you have connected a TV that can receive RGB signals. Select this mode so the TV automatically switches to display the picture from the unit when you turn the unit on. ● **RGB 2 (without component)** : Select when you have connected a TV that can receive RGB signals. If you would like to switch to display the picture from the unit only when playback or viewing menus, select this mode.
	AV2 Settings Set to match the connected equipment. ● Press [ENTER] to show the following settings.	
	AV2 Input This setting is according to the output signal of the connected equipment.	● **Video** ● S Video
	Ext Link This setting cannot be made when the "TV System" is set to "NTSC" (➡ above).	● **Ext Link 1**: When a satellite/digital terrestrial receiver (SKY Digital STB etc.) which transmits a special control signal recordings via the 21-pin Scart lead is connected. Start and stop timings of recording are controlled by the control signal (SKY Digital STB/digital terrestrial receiver using the "SKY Personal Planner" function). ● Ext Link 2: When external equipment with a timer function is connected. When it turns on, recording starts. When it turns off, recording stops.

Refer to the control reference on page 49.

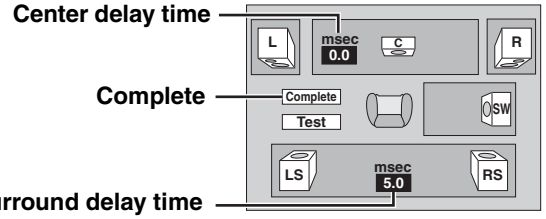
Tabs	Menus	Options (Boxed items are the factory presets.)
Others	**Remote Control (➡ 21)**	● [DVD 1] ●DVD 2 ●DVD 3
	Clock (➡ 55)	
	Owner ID (➡ 18) In order to prevent another person from using this unit if it is stolen, you can set a PIN number and input your personal information. Once the PIN number has been set, you cannot return to the factory preset. Make sure not to forget this.	●PIN number ●Name ●House No. ●Postcode
	Initialize ● Press [ENTER] to show the following settings.	
	Shipping Condition All the settings except for the ratings level, ratings password, Owner ID and time settings return to the factory preset. The timer recording programmes are also cancelled.	● Yes ● [No]
	Default Settings All the settings except for the programmed channels, time settings, disc language settings, ratings level, ratings password, Owner ID and remote control code, return to the factory presets.	● Yes ● [No]

Speaker Setting

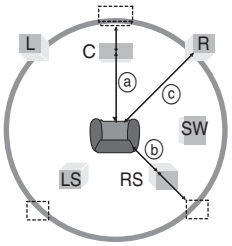
This setting is only reflected when playing multi-channel audio. There is no effect with two-channel audio.

Changing the delay time

(Center and surround speakers only)
For optimum listening with 5.1-channel sound, all the speakers, except for the subwoofer, should be the same distance from the seating position. If you have to place the center or surround speakers closer to the seating position, adjust the delay time to make up for the difference.



If either distance ⓐ or ⓑ is less than ⓒ, find the difference in the relevant table and change to the recommended setting.



⬚: Recommended placement

1 Press [▲, ▼] to select the delay time box and press [ENTER].
2 Press [▲, ▼] to adjust the delay time and press [ENTER].
3 Press [▲, ▼, ◄] to select "Complete" and press [ENTER].

ⓐ Center speaker

Difference	Setting
Less than 0 cm	0.0 ms*
Approx. 30 cm	1.0 ms
Approx. 60 cm	2.0 ms
Approx. 90 cm	3.0 ms
Approx. 120 cm	4.0 ms
Approx. 150 cm	5.0 ms

ⓑ Surround speaker

Difference	Setting
Less than 0 cm	0.0 ms
Approx. 150 cm	5.0 ms*
Approx. 300 cm	10.0 ms
Approx. 450 cm	15.0 ms

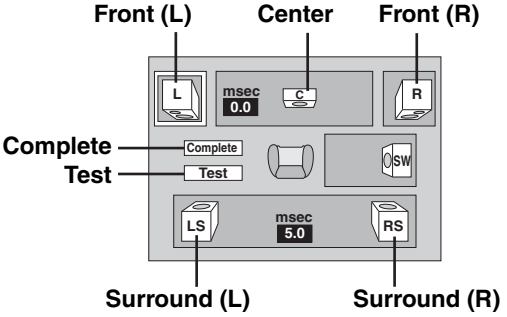
* Factory preset

To return to the previous screen
Press [RETURN].
To exit the screen
Press [RETURN] several times.

Adjusting the speaker levels

(Center and surround speakers only)
Adjust each speaker level to the same level to get appropriate surround effects.
●This cannot be set when headphones are connected.

1 Press [▲, ▼] to select "Test" and press [ENTER].



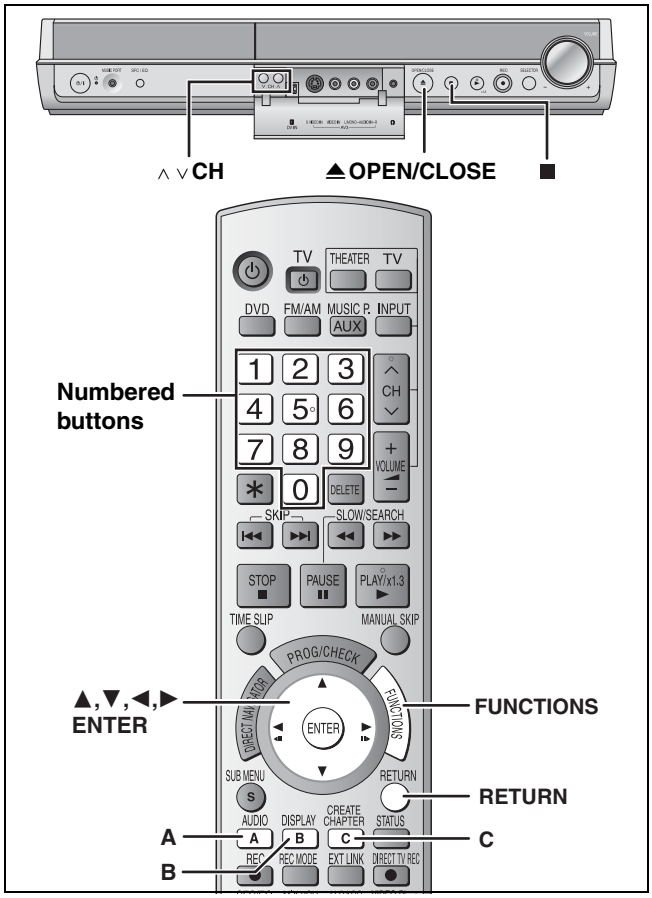
A Test signal is output from each speaker in a clockwise motion. Signals are also output from the front speakers, but they cannot be adjusted. Use this when adjusting other speakers for comparison. When the test signal is being output, press [▲, ▼] to lengthen the time of the test signal.

2 Press [▲, ▼] to select the desired level for each speaker while test signal is being output.
●Center: –6 dB to +6 dB
●Surround (L/R): –6 dB to +6 dB

To stop test signal
Press [RETURN].

To return to the previous screen
Press [RETURN].

To exit the screen
Press [RETURN] several times.



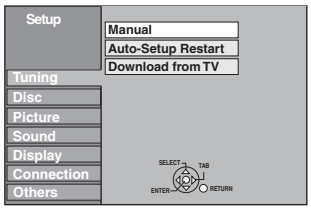
You can add or delete channels, or change programme positions.

1 **While stopped**
Press [FUNCTIONS].

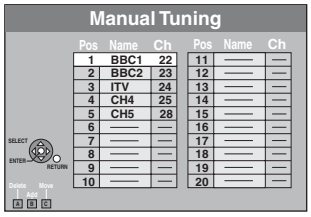
2 **Press [▲, ▼] to select “To Others” and press [ENTER].**

3 **Press [▲, ▼] to select “Setup” and press [ENTER].**

4 **Press [▲, ▼] to select “Tuning” and press [►].**



5 **Press [▲, ▼] to select “Manual” and press [ENTER].**



To delete a programme position
Press [▲, ▼, ◄, ►] to select a programme position and press [A].

To add a blank programme position
Press [▲, ▼, ◄, ►] to select a programme position and press [B].

To move a TV station to another programme position
① Press [▲, ▼, ◄, ►] to select a programme position and press [C].
② Press [▲, ▼, ◄, ►] to select the new programme position to which you want to assign the TV station and press [ENTER].

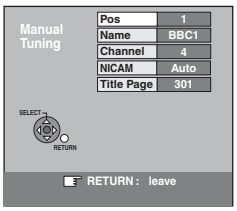
Note
When the unit connected to a Q Link-compatible TV with a fully wired 21-pin Scart lead sets itself automatically (➡ 18), only deletion of the programme position can be performed.

To change detailed station settings

After performing steps 1–5

6 **Press [▲, ▼, ◄, ►] to select a programme position and press [ENTER].**

e.g.



Press [▲, ▼] to select an item and press [►].

Pos	**To change the programme position in which the TV stations are assigned** Press [▲, ▼] or numbered buttons to select the number of the desired programme position and press [ENTER].
Name	**To enter or change the name of a TV station** Press [▲, ▼, ◄, ►] to enter station name and press [ENTER]. If the station name needs a blank space, select the blank between “Z” and “✳”.
Channel	**To enter newly available TV stations or change the channel number of an already tuned TV station** Press [▲, ▼] or the numbered buttons to enter the channel number of the desired TV station. Wait a few moments until the desired TV station has been tuned. After the desired TV station is tuned, press [ENTER].
NICAM	**To select the type of sound to be recorded** Press [▲, ▼] to select “Auto” and press [ENTER]. ● Select “Off” if you want to record the normal (mono) sound during a stereo, bilingual or NICAM broadcast, or if the stereo sound is distorted due to inferior reception conditions.
Title Page	**To enter the Teletext title page for a channel** Entering title page number allows the unit to automatically record programme and station names. Press [▲, ▼] or numbered buttons to enter the number and press [ENTER]. ● To find the correct title page for the station, refer to its Teletext TV guide. ● The unit’s clock must be set correctly.

Resetting channel setting

Refer to the control reference on page 53.

Automatic setting

You can restart auto channel setting if the channel reception setting (➡ 18) fails for some reason.

After performing steps 1-4 (➡ 53)

5 Press [▲, ▼] to select “Auto-Setup Restart” or “Download from TV” and press [ENTER].

The confirmation screen appears.
Select “Download from TV” when you connect the unit to a Q Link-compatible TV with a fully wired 21-pin Scart lead.
(Programme positions are downloaded from the TV and copied through this convenient function.)

6 Press [◄, ►] to select “Yes” and press [ENTER].

You can also use the following method to restart Auto-Setup.
When the unit is on and stopped
Press and hold [∨ CH] and [CH ∧] on this unit for about 5 seconds.

- All the settings except for the ratings level, ratings password, Owner ID and time settings return to the factory preset. The timer recording programmes are also cancelled.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [RETURN] several times.

TV System

Change this setting if you connect an NTSC television or to record NTSC video from another source.

1 While stopped
Press [FUNCTIONS].

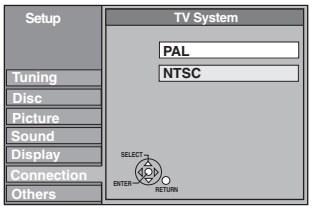
2 Press [▲, ▼] to select “To Others” and press [ENTER].

3 Press [▲, ▼] to select “Setup” and press [ENTER].

4 Press [▲, ▼] to select “Connection” and press [►].

5 Press [▲, ▼] to select “TV System” and press [ENTER].

6 Press [▲, ▼] to select the TV system and press [ENTER].



- **PAL** (factory preset)
  - –Select when connecting to a PAL or Multi-system television. Programmes recorded using NTSC are played as PAL 60.
  - –Select to record television programmes and PAL input from other equipment.
- **NTSC**
  - –Select when connecting to a NTSC television. Television programmes cannot be recorded properly.
  - –Select to record NTSC input from other equipment.

The confirmation screen appears.

7 Press [◄, ►] to select “Yes” and press [ENTER].

To return to the previous screen
Press [RETURN].

To exit the screen
Press [RETURN] several times.

■ To change the setting all at once (PAL↔NTSC)
While stopped, press and hold [■] and [▲ OPEN/CLOSE] on this unit at the same time for about 5 seconds.

Set the clock manually

Refer to the control reference on page 53.

- Usually, the unit's channel reception setting function (➡ 18) automatically adjusts the clock to correct time. Under some reception conditions, however, the unit cannot set the clock automatically.
- In this case, follow the operation steps below to manually set the clock.

- In the case of a power failure, the clock setting remains in memory for approximately 60 minutes.

1 **While stopped**
Press [FUNCTIONS].

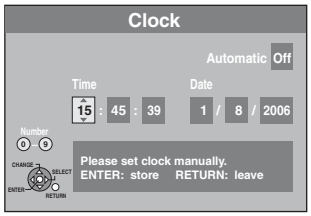
2 **Press [▲, ▼] to select "To Others" and press [ENTER].**

3 **Press [▲, ▼] to select "Setup" and press [ENTER].**

4 **Press [▲, ▼] to select "Others" and press [►].**

5 **Press [▲, ▼] to select "Clock" and press [ENTER].**

6 **Press [▲, ▼] to select "Off" of "Automatic" and press [ENTER].**



7 **Press [◄, ►] to select the item you want to change.**

The items change as follows:
Hour⟷Minute⟷Second⟷Day⟷Month⟷Year

8 **Press [▲, ▼] to change the setting.**

You can also use the numbered buttons for setting.

9 **Press [ENTER] when you have finished the settings.**

The clock starts.

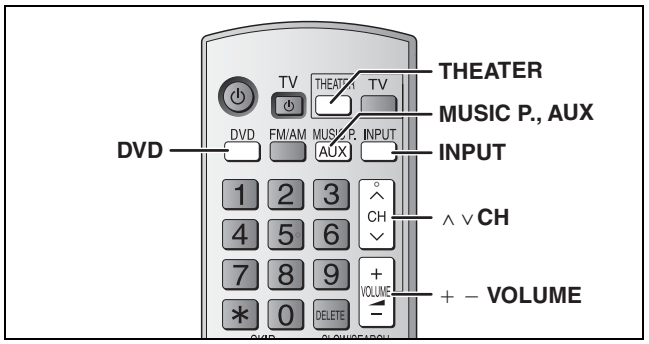
To return to the previous screen
Press [RETURN].

To exit the screen
Press [RETURN] several times.

Note
If a TV station transmits a time setting signal, and when "Automatic" in the Clock setting menu is set to "On", the automatic time correction function checks the time and if necessary it is adjusted several times every day.

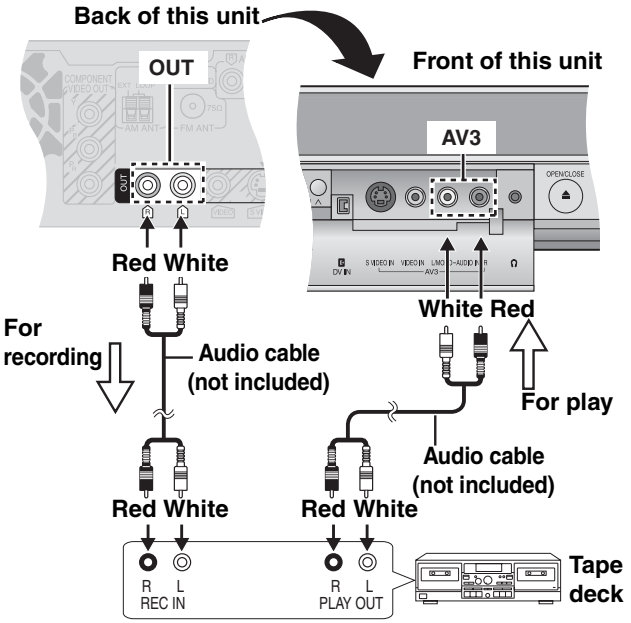
Language code list Enter the code with the numbered buttons.

Abkhazian:	6566	Catalan:	6765	Gujarati:	7185	Lingala:	7678	Rhaeto-Romance:	8277	Tamil:	8465
Afar:	6565	Chinese:	9072	Hausa:	7265	Lithuanian:	7684	Romanian:	8279	Tatar:	8484
Afrikaans:	6570	Corsican:	6779	Hebrew:	7387	Macedonian:	7775	Russian:	8285	Telugu:	8469
Albanian:	8381	Croatian:	7282	Hindi:	7273	Malagasy:	7771	Samoan:	8377	Thai:	8472
Ameharic:	6577	Czech:	6783	Hungarian:	7285	Malay:	7783	Sanskrit:	8365	Tibetan:	6679
Arabic:	6582	Danish:	6865	Icelandic:	7383	Malayalam:	7776	Scots Gaelic:	7168	Tigrinya:	8473
Armenian:	7289	Dutch:	7876	Indonesian:	7378	Maltese:	7784	Serbian:	8382	Tonga:	8479
Assamese:	6583	English:	6978	Interlingua:	7365	Maori:	7773	Serbo-Croatian:	8372	Turkish:	8482
Aymara:	6589	Esperanto:	6979	Irish:	7165	Marathi:	7782	Shona:	8378	Turkmen:	8475
Azerbaijani:	6590	Estonian:	6984	Italian:	7384	Moldavian:	7779	Sindhi:	8368	Twi:	8487
Bashkir:	6665	Faroese:	7079	Japanese:	7465	Mongolian:	7778	Singhalese:	8373	Ukrainian:	8575
Basque:	6985	Fiji:	7074	Javanese:	7487	Nauru:	7865	Slovak:	8375	Urdu:	8582
Bengali; Bangla:	6678	Finnish:	7073	Kannada:	7578	Nepali:	7869	Slovenian:	8376	Uzbek:	8590
Bhutani:	6890	French:	7082	Kashmiri:	7583	Norwegian:	7879	Somali:	8379	Vietnamese:	8673
Bihari:	6672	Frisian:	7089	Kazakh:	7575	Oriya:	7982	Spanish:	6983	Volapük:	8679
Breton:	6682	Galician:	7176	Kirghiz:	7589	Pashto, Pushto:	8083	Sundanese:	8385	Welsh:	6789
Bulgarian:	6671	Georgian:	7565	Korean:	7579	Persian:	7065	Swahili:	8387	Wolof:	8779
Burmese:	7789	German:	6869	Kurdish:	7585	Polish:	8076	Swedish:	8386	Xhosa:	8872
Byelorussian:	6669	Greek:	6976	Laotian:	7679	Portuguese:	8084	Tagalog:	8476	Yiddish:	7473
Cambodian:	7577	Greenlandic:	7576	Latin:	7665	Punjabi:	8065	Tajik:	8471	Yoruba:	8979
		Guarani:	7178	Latvian, Lettish:	7686	Quechua:	8185			Zulu:	9085



Preparation
Press [THEATER] to switch the remote control to operate this unit.

Connecting other audio equipment



Audio output from this unit becomes 2-channel only. Multi-channel audio is down-mixed (➡ 65).

■ Recording audio from discs or television broadcasts to a tape deck

1 **Discs: Press [DVD] to select the DVD drive as the source.**
Television broadcasts: Press [∧ ∨ CH] to select the channel.
2 **Start recording and play.**

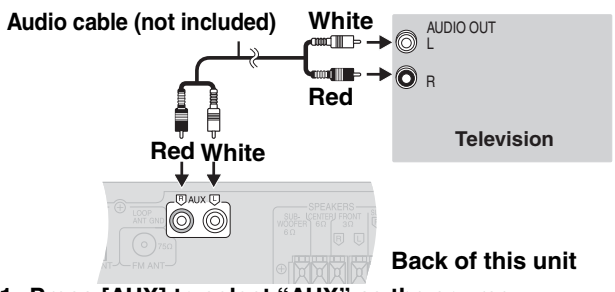
Refer to the manual of the other unit for details.

FM/AM broadcasts and audio from the AUX terminal or MUSIC PORT terminal are not output through the AUDIO OUT terminals.

■ To playback audio from a tape deck, etc., through this unit's speakers

1 **Press [DVD] to select the DVD drive as the source.**
2 **Press [INPUT] to select "AV3".**
3 **Start play.**

Enjoying TV broadcast with this unit's speakers



1 **Press [AUX] to select "AUX" as the source.**
2 **Turn on the television and select the channel.**
3 **Adjust the volume on this unit.**
●Set TV volume minimum.

You can also enjoy TV broadcasts with this unit's speakers if you connect the TV to this unit's AV1 terminal (➡ 12–14).

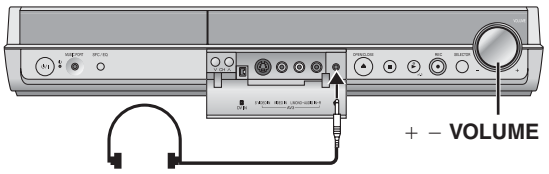
While stopped
1 **Press [DVD] to select the DVD drive.**
2 **Press [INPUT] to select "AV1".**
3 **Turn on the television and select the channel.**
4 **Adjust the volume on this unit.**
●Set TV volume minimum.

● To listen to the sound from the television, select the appropriate audio out (e.g. Monitor) on the television.

Using headphones

1 Reduce the volume and connect the headphones (not included).

Headphone plug type: ∅3.5 mm stereo mini plug



2 Adjust headphone volume with [+ − VOLUME].

Audio output becomes 2-channel only. Multi-channel audio is down-mixed (➡ 65).

Note
●When headphones are connected, only "Equalizer (EQ)" can be used to change the sound quality (➡ 48).
●Avoid listening for prolonged periods of time to prevent hearing damage.

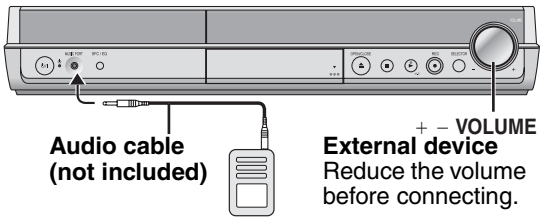
Using the Music Port

The Music Port allows you to connect and enjoy music from an external device (e.g. MP3 player) through your home theater system.

Preparation
To avoid distorted sound, make sure that any equalizer function of your external device is turned off.

1 Reduce the volume and connect the external device (not included).

Plug type: ∅3.5 mm stereo mini plug



2 Press [MUSIC P.] to select "F MUSICP".

F MUSICP ⟷ AUX

3 Adjust the external device volume to a normal listening level, and then adjust the volume of this unit with [+ − VOLUME].

Note
If the audio is distorted, turn the volume down on the connected external device.

Linked operations with the TV (Q Link)

What is Q Link?
Q Link enables you to connect this unit to a Q Link equipped Panasonic TV and perform various linked functions.
The following systems from other manufacturers have similar function to Q Link from Panasonic.
For details, refer to your television's operating instructions or consult your dealer.
- Q Link (registered trademark of Panasonic)
- Easy Link (registered trademark of Philips)
- SMARTLINK (registered trademark of Sony)
- DATA LOGIC (registered trademark of Metz)
- Megalogic (registered trademark of Grundig)

Preparation
- Connect this unit to your TV with a fully wired 21-pin Scart lead (➡ 12–14).

TV/DVD Auto On	When you press the following buttons, linked operations with the TV activate and corresponding screens appear. **When this unit is on:** **Press [▶] (PLAY)** **[DIRECT NAVIGATOR]** **[VIDEO Plus+]** **[PROG/CHECK]** **[FUNCTIONS]** **When this unit is off (standby mode):** **Press [▶] (PLAY)** **[DIRECT NAVIGATOR]** **[VIDEO Plus+]** **[PROG/CHECK]** ● DVD-V DVD-A CD VCD and MP3 The TV is automatically turned on and corresponding screen appear when you insert the discs.
DVD Auto Standby	When you turn the TV off, the unit is turned off as well. However, this function works in the stop mode [while screen saver (➡ right) is displayed on the television, this does not work]. This function does not work during the following operations: Channel reception setting, Auto Clock Setting, Child Lock and Manual Tuning.
Direct TV Recording	You can at once record the same programme that you are watching on the TV. ● This function allows you to immediately start recording the programme that you are viewing on the TV without having to change the channels on this unit. **1 Press [DVD] or [AUX] to select the DVD drive or "AUX".** **2 Insert the disc (➡ 24).** **3 Press and hold [● DIRECT TV REC] for 1 second.** Recording starts. **To stop recording** Press [■]. **Note** ● [● DIRECT TV REC] will function even when the unit is in standby mode, if the DVD drive is selected. ● In the following situations, [● DIRECT TV REC] will not function: –"FM", "AM", or "F MUSICP" is selected as the source. –A source other than DVD drive is selected while the unit is in standby mode.
Download from the TV	As you set TV stations, the station list data is automatically copied from the TV to the unit, and the TV stations are assigned to the programme positions on the unit in the same order as on the TV.

Safety precautions

Placement

Set the unit up on an even surface away from direct sunlight, high temperatures, high humidity, and excessive vibration. These conditions can damage the cabinet and other components, thereby shortening the unit's service life.

Do not place heavy items on the unit.

Voltage

Do not use high voltage power sources. This can overload the unit and cause a fire.

Do not use a DC power source. Check the source carefully when setting the unit up on a ship or other place where DC is used.

AC mains lead protection

Ensure the AC mains lead is connected correctly and not damaged. Poor connection and lead damage can cause fire or electric shock. Do not pull, bend, or place heavy items on the lead.

Grasp the plug firmly when unplugging the lead. Pulling the AC mains lead can cause electric shock.

Do not handle the plug with wet hands. This can cause electric shock.

Foreign matter

Do not let metal objects fall inside the unit. This can cause electric shock or malfunction.

Do not let liquids get into the unit. This can cause electric shock or malfunction. If this occurs, immediately disconnect the unit from the power supply and contact your dealer.

Do not spray insecticides onto or into the unit. They contain flammable gases which can ignite if sprayed into the unit.

Service

Do not attempt to repair this unit by yourself. If sound is interrupted, indicators fail to light, smoke appears, or any other problem that is not covered in these instructions occurs, disconnect the AC mains lead and contact your dealer or an authorized service center. Electric shock or damage to the unit can occur if the unit is repaired, disassembled or reconstructed by unqualified persons.

Extend operating life by disconnecting the unit from the power source if it is not to be used for a long time.

On the television

		Page
Cannot finish recording completely.	● The programme was copy-protected. ● The disc may be full. ● The maximum number of times you can record the programme is exceeded.	— — **24**
Cannot record on the disc. **Unable to format.** **Please check the disc.**	● The disc may be dirty or scratched.	**64**
Cannot record. Disc is full. **Cannot record. Maximum number of titles exceeded.**	● Create space by deleting any unnecessary titles. RAM -RW(V) +RW [Even if you delete recorded content from the DVD-R, DVD-R DL, +R or +R DL there is no increase in disc space. Available space on DVD-RW (DVD-Video format) and +RW increases only when the last recorded title is deleted.] ● Use a new disc.	**37, 39, 44** —
No disc	● The disc may be upside down.	—
This is a non-recordable disc. **This disc is not formatted properly.**	● The unit cannot record on the disc you inserted. Insert a DVD-RAM or unfinalized DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW. ● You inserted an unformatted DVD-RAM, DVD-RW, +R, +R DL or +RW. Format the disc with this unit.	**6–7** **44**
⃠	● The operation is prohibited by the unit or disc.	—

On the unit's display

The following messages or service numbers appear on the unit's display when something unusual is detected during startup and use.

DVD □ ("□" stands for a number.)	● The remote control and this unit are using different codes. Change the code on the remote control. Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds. e.g. Display	**21**
HARD ERR ("HARD" and "ERR" are alternately displayed.)	● If there is no change after turning the unit on and off, consult the dealer where the unit was purchased.	—
NoREAD	● The disc is dirty or badly scratched. The unit cannot record, play, or edit. ● This message may appear when the DVD lens cleaner has finished cleaning. Press [▲ OPEN/CLOSE] on this unit to eject the disc.	**64** **24**
NoWRIT	● Recording may be unavailable due to a disc problem. Use a new disc. ● The unit's "TV System" setting differs from the TV system used by the disc. Change the "TV System" in the Setup menu.	— **54**
NoERAS	● Deleting an item may be unavailable due to a disc problem. Use a new disc.	—
PLEASE WAIT ("PLEASE" and "WAIT" are alternately displayed.)	● Displayed when the unit is started. This is not a malfunction. ● The unit is carrying out its recovery process. You cannot operate the unit while "PLEASE WAIT" is displayed.	— —
PROG FULL ("PROG" and "FULL" are alternately displayed.)	● There are already 16 timer programmes. Delete unnecessary timer programmes.	**28**
UNSUPPORT ("UNSUP" and "PORT" are alternately displayed.)	● You have inserted a disc the unit cannot play or record on.	**6–7**
UNFORMAT ("UNFOR" and "MAT" are alternately displayed.)	● You have inserted a new DVD-RW/+R/+R DL/+RW or a DVD-RAM/DVD-RW (DVD-Video format) recorded on other equipment.	**44**
U59	● The unit is hot. The unit switches to standby for safety reasons. Wait for about 30 minutes until the message disappears. Select a position with good ventilation when installing the unit. Do not block the ventilation holes on the top or rear of the unit.	—
U61	● The unit detected an error while recording or playing with no disc in the disc tray. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears.	—
U88	● The unit detected an error while recording or playing with a disc in the disc tray. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears.	**60**
U99	● The unit fails to operate properly. Press [⏻/I] on this unit to switch the unit to standby. Now press [⏻/I] on this unit again to turn the unit on.	—
X HOLD	● The Child Lock function is activated. Press and hold [ENTER] and [RETURN] simultaneously until "X HOLD" disappears.	**46**
AF F61	● Check and correct the speaker cord connections. If this does not fix the problem, there is a power supply problem. Consult the dealer.	**9, 11**

Frequently asked questions

Set up		Page
The television has a Scart terminal and component video input terminal. Which terminal should I connect with?	● If you have a regular television (CRT: cathode ray tube) we recommend using the Scart terminal. You can enjoy high-quality RGB video from this unit by connecting to an RGB compatible television. If you have an LCD/plasma television or LCD projector compatible with progressive scan, connect through the component video terminals for high-quality progressive video. If you have a CRT television or a multi system television using PAL mode that is compatible with progressive scan, we cannot recommend progressive output as some flickering can occur.	**12–15**
Is my television progressive output compatible?	● All Panasonic televisions that have 625 (576)/50i · 50p, 525 (480)/60i · 60p input terminals are compatible. Consult the manufacturer if you have another brand of television.	**—**
Disc		
Can DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW recorded on this unit be played on other equipment?	● You can play on compatible equipment such as DVD players after finalizing the disc on this unit. It is not necessary to finalize +RW. However depending on the condition of the recording, the quality of the disc and capabilities of the DVD player, play may not be possible.	**45**
Can I play DVD-Video, DVD-Audio and Video CDs bought in another country?	● You cannot play DVD-Video if their region number does not include “2” or “ALL”. Refer to the disc’s jacket for more information.	**Cover**
Can a DVD-Video that does not have a region number be played?	● The DVD-Video region number indicates the disc conforms to a standard. You cannot play discs that do not have a region number.	**—**
Please tell me about DVD-R, DVD-R DL, DVD-RW, +R, +R DL and +RW compatibility with this unit.	● This unit records and plays DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW, and plays DVD-RW (VR format). ● This unit also records and plays high speed recording compatible discs. ● After recording but before finalizing +R, +R DL discs –You may not be able to play and record discs on this unit after recording them on other Panasonic products or other manufacturer's equipment. –You may not be able to play and record discs on other equipment after recording them on this unit. After finalizing the disc, you will be able to play it on any DVD-Video compatible player.	**6–7** **—** **—**
Please tell me about CD-R and CD-RW compatibility with this unit.	● This unit plays CD-R/CD-RW discs (audio recording discs) which have been recorded under one of the following standards: CD-DA, Video CD, SVCD (conforming to IEC62107), MP3 and still pictures (JPEG/TIFF). Close the session after recording. ● You cannot write to a CD-R or CD-RW with this unit.	**7, 34** **—**
Recording		
Can I record from a commercially purchased video cassette or DVD?	● Most commercially sold video cassettes and DVD are copy protected; therefore, recording is usually not possible.	**—**
Can I switch to bilingual broadcast during recording?	● With DVD-RAM, you can. Just press [AUDIO]. This does not affect the actual recording of the audio. ● With DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW, you cannot.	**—** **—**

Troubleshooting guide

Before requesting service, make the following checks. If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, consult your dealer for instructions.

The following do not indicate a problem with this unit:

- Regular disc rotating sounds.
- Poor reception due to atmospheric conditions.
- Image disturbance during search.
- Interruptions in reception due to periodic satellite broadcasting breaks.
- Operations do not work due to a poor-quality disc. (Try again using a Panasonic disc.)
- The unit freezes due to one of its safety devices being activated. (Press and hold [⏻/I] on this unit for 10 seconds.)

Power		Page
No power. **The unit does not turn on pressing [⏻].**	● Insert the AC mains lead securely into a known active AC mains socket. ● Linked timer recordings with external equipment is in recording standby ("EXT-L" on the unit's display blinks when [⏻] is pressed). Press [EXT LINK] to cancel the recording standby.	**16** **29**
The unit switches to the standby mode.	● One of the unit's safety devices is activated. Press [⏻/I] on this unit to turn the unit on.	**—**

TV screen and video

Television reception worsens after connecting the unit.	● This can occur because the signals are being divided between the unit and other equipment. It can be solved by using a signal booster, available from audio-visual suppliers. If it is not solved by using a signal booster, consult the dealer.	**—**
Status messages do not appear.	● Select "Automatic" in "On-Screen Messages" in the Setup menu.	**51**
The grey background does not appear.	● Select "On" in "Grey Background" in the Setup menu.	**51**
Picture does not appear during timer recording.	● Timer recordings work regardless whether the unit is on or off. To confirm the timer recording is going to work properly, turn the unit on.	**—**
The 4:3 aspect ratio picture expands left and right. **Screen size is wrong.**	● Use the television to change the aspect. If your television does not have that function, set "Progressive" in the Picture menu to "Off". ● Check the settings for "TV Aspect" in the Setup menu.	**36** **51**
There is a lot of after-image when playing video.	● Set "Playback NR" in the Picture menu to "Off".	**36**
When playing DVD-Video using progressive output, one part of the picture momentarily appears to be doubled up.	● Set "Progressive" in the Picture menu to "Off". This problem is caused by the editing method or material used on DVD-Video, but should be corrected if you use interlace output.	**36**
There is no apparent change in picture quality when adjusted with the Picture menu in the on-screen menus.	● The effect is less perceivable with some types of video.	**—**
The images from this unit do not appear on the television.	● Make sure that the television is connected to the AV1 terminal, VIDEO OUT terminal, S VIDEO OUT terminal or COMPONENT VIDEO OUT terminals on this unit. ● Make sure that the television's input setting (e.g. AV 1) is correct.	**12–15** **—**
Picture is distorted.	● Progressive output is set to on but the connected television is not progressive compatible. Press and hold [■] and [▶ ×1.3] on this unit at the same time for about 5 seconds. The setting will change to interlace. ● The unit's "TV System" setting differs from the TV system used by the disc now playing. While stopped, press and hold [■] and [⏏ OPEN/CLOSE] on this unit for 5 or more seconds. The system switches from PAL to NTSC or vice versa.	**—** **54**

Displays

The display is dim.	● Change "FL Display" in the Setup menu.	**51**
"0:00" is flashing on the unit's display.	● Set the clock.	**55**
The clock is not correct.	● Under adverse reception conditions, etc., the automatic time correction function may not work. In this case, "Automatic" is automatically turned to "Off". If re-setting the Auto Clock Setting does not work, set the time manually.	**55**
The time recorded on the disc and the available time shown do not add up. **The play time shown for MP3 does not agree with the actual time.**	● Times shown may disagree with actual times. ● Even if you delete recorded content from the DVD-R, DVD-R DL, +R or +R DL, there is no increase in disc space. ● Available recording space on DVD-RW (DVD-Video format) or +RW increases only when the last recorded title is deleted. It does not increase if other titles are deleted. ● More disc space than the actual recording time is used after recording or editing DVD-R, DVD-R DL, +R or +R DL 200 times or more. (For the second layer on DVD-R DL and +R DL, this happens after about 60 times.) ● While searching, the elapsed time may not display correctly.	**—** **—** **—** **—** **—**
"U88" is displayed and the disc cannot be ejected.	● The unit is carrying out the recovery process. Do the following to eject the disc. 1 Press [⏻/I] on this unit to switch the unit to standby. If the unit doesn't switch to standby, press and hold [⏻/I] on this unit for about 10 seconds. The unit is forcibly switched to standby. 2 While the unit is off, press and hold [■] and [CH ∧] on this unit at the same time for about 5 seconds. Remove the disc.	**—**

Radio

Noise is heard. **Sound is distorted.** **"TUNED" is flashing or doesn't light.** **"ST" is flashing or doesn't light during FM broadcasts.**	●This is being caused by weak signal reception. When listening to FM radio, try the following operations. –Adjust the position of the FM aerial. –Use an FM outdoor aerial. –Press [FM MODE] to set to "MONO". When listening to AM radio, try the following operations. –Adjust the position of the AM aerial. –Press [FM MODE] to select between "BP1" and "BP4" that receives good reception.	 — **47** **47** — **47**
A beat sound is heard.	●Turn the television off or separate it from the unit.	—
A low hum is heard during AM broadcasts.	●Separate the aerial from other cables and cords.	—
The radio cannot be tuned in.	●Turn off nearby televisions, video cassette recorders, satellite receivers and computers.	—
All programmed radio presets are erased. **Returns to the original setting even after making changes to the sound effect settings.**	●Radio and sound effect settings are stored to memory after pressing [⏻]. Do not remove the AC mains lead until "BYE" disappears from the unit's display.	—

Sound

No sound. **Low volume.** **Distorted sound.** **Cannot hear the desired audio type.**	● Check the connections and settings. ● Press [AUDIO] to select the audio. ●Some multi-channel DVD-Audio will prevent down-mixing of all or part of their contents if this is the manufacturer's intention. This unit cannot down-mix these types of discs. (When the disc is automatically down-mixed, audio will not be output correctly when using headphones, etc. Audio is output only with the front two channels, etc.) ●Turn the volume up. ●Turn muting off. ●Switch off the unit, determine and correct the cause, then switch the unit on. Causes include: –Shorting (bare wires touching) of positive and negative speaker wires. –Using speakers with an impedance lower than that rated for this unit. –Straining of the speakers through excessive volume or power. –Using the unit in a hot environment without proper ventilation. ●The factory settings for the "H. Bass" and Subwoofer levels are optimized for 5.1 channel movie playback. If the bass seems too heavy during 2-channel disc, playback, etc. change the settings. ●When using headphones, you cannot set anything other than "Equalizer (EQ)". ●If the audio is distorted when "F MUSICP" is selected, turn the volume down on the connected external device. ● When audio playback is output through multi-channel, "Sound Field Control (SFC)" cannot be set.	**8–14** **30** — — **49** — **48, 49** — — —
Cannot switch audio.	● You cannot change the audio type when playing DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW. When any these disc types is in use, the audio of broadcast programme cannot be changed. ● There are discs which audio cannot be changed because of how the disc was created.	— —
Humming heard during play.	●An AC mains lead or fluorescent light is near this unit. Keep other appliances and leads away from this unit.	—

Operation

Cannot operate the television.	●Press [TV] to switch the remote control to operate the television. ●Change manufacturer code. Some televisions cannot be operated even if you change the code.	— **21**
The remote control doesn't work.	●Press [THEATER] to switch the remote control to operate this unit. ● The remote control and this unit are using different codes. Change the code on the remote control. Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds. e.g. Display ● The batteries are depleted. Replace them with new ones. ● You are not pointing the remote control at this unit's remote control signal sensor during operation. ● Coloured glass may obstruct the signal reception/transmission. ● Don't place the signal sensor in direct sunlight or in areas that may be subject to sunlight exposure. ● It may be necessary to set the code on the remote control again after changing the batteries. ● It may be necessary to set the manufacturer code again after changing the batteries. ● The child lock function is activated.	— **21** **4** **4** — — **21** **21** **46**

Continued on the next page

Operation (Continued)

		Page
The unit is on but cannot be operated.	● Some operations may be prohibited by the disc. ● The unit is hot (“U59” appears on the display). Wait for “U59” to disappear. ● One of the unit’s safety devices may have been activated. Reset the unit as follows: 1 Press [⏻/I] on this unit to switch the unit to standby. If the unit doesn’t switch to standby, press and hold [⏻/I] on this unit for about 10 seconds. The unit is forcibly switched to standby. Alternatively, disconnect the AC mains lead, wait one minute, then reconnect it. 2 Press [⏻/I] on this unit to switch it on. If the unit still cannot be operated, consult the dealer. ● Condensation has formed. Wait 1 to 2 hours for it to evaporate.	— — — —
Cannot eject disc.	● Linked timer recordings with external equipment is in recording standby (“EXT-L” on the unit’s display blinks when [⏻] is pressed). Press [EXT LINK] to cancel the recording standby. ● The unit is recording. ● The unit may have a problem. While the unit is off, press and hold [■] and [CH ∧] on this unit at the same time for about 5 seconds. Remove the disc and consult the dealer. ● If the Child Lock function is activated, above operation does not work. Cancel the Child Lock function.	**29** — — **46**
Cannot tune channels. **Cannot download the tuning positions.**	● Check the connections. ● You must connect to a television equipped with the Q Link function with a fully wired 21-pin Scart lead to download channel presets.	**12–14** —
Startup is slow. **When the unit is turned on, audio and video output takes a long time.**	● Startup is slow if the clock is not set, there was a power failure or the AC plug has just been connected. ● 20 to 30 seconds after turning on the unit, you can play a disc or start recording to discs other than DVD-RAM. ● Startup takes time for a few minutes after 5:15 am due to system maintenance of this unit.	— — —
Takes time to read DVD-RAM.	● It may take time to read a disc if it is being used for the first time in this unit or it has not been used for a long time.	—
During disc operation the unit does not respond.	● The selector has been set to “FM”, “AM”, “AUX” or “F MUSICP”. Press [DVD] to select “DVD” as the source.	—

Recording, timer recording and copying

Cannot record.	● You haven’t inserted a disc or the disc you inserted cannot be recorded on. Insert a disc the unit can record onto. ● The disc is unformatted. Format the disc. RAM -RW(V) +R +R DL +RW ● The write-protect tab on the cartridge is set to PROTECT, or the disc is protected with DVD Management. ● Some programmes have limitations on the number of times they can be recorded. (CPRM) ● You cannot record when there is not enough space or when the number of titles has reached its limit. Delete unwanted titles or use a new disc. ● You cannot record on finalized DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or DVD-RW (VR format) discs. ● Due to peculiarities of DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW, you may be unable to record onto them if you either insert and remove the disc or switch the unit on and off while a disc is loaded, a total of fifty times. ● DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW recorded on this unit may not be recordable on other Panasonic DVD recorders. ● Audio from FM/AM broadcasts cannot be recorded. ● In the following situations, [EXT LINK] or [● DIRECT TV REC] will not function: –“FM”, “AM”, or “F MUSICP” is selected as the source. –A source other than DVD drive is selected while the unit is in standby mode.	**6–7** **44** **44** **65** **37, 39, 44** — — — — **29, 57**
Cannot record from external equipment.	● Check that the connection is correct. ● Select the input channel (“AV2”, “AV3” or “DV”) for the equipment you have connected.	**13–14, 42** **24, 42**
Timer recording does not work properly. **VIDEO Plus+ programming does not work properly.**	● The timer programme is incorrect or different timer programme times overlap. Correct the programme. ● The unit or the timer programme is not on timer recording standby. (“◴” on the unit's display or the timer icon in the timer recording list is not on.) Put the unit and the timer programme on timer recording standby. ● Set the clock.	**28** **26–28** **55**
Timer recording does not stop even when [■] is pressed.	● When this unit is on, press [DVD] to select the DVD drive, then press [■]. A dialogue appears, so press [◄, ►] to select “Stop Recording” and press [ENTER]. ● When using the linked timer recording with external equipment, press [EXT LINK]. (“EXT-L” disappears.)	**27** **29**

Recording, timer recording and copying (Continued)

		Page
The timer programme remains even after recording finishes.	● The timer programme remains if set to daily or weekly.	**27**
A part or whole of a recorded title has been lost.	● If there is a power failure or the plug is disconnected from the household mains socket while recording or editing, the title may be lost or the disc may become unusable. You will have to format the disc (RAM -RW(V) +RW) or use a new disc. Please take care as we cannot offer any guarantee regarding lost programmes or discs.	— **44**
The DV automatic recording function does not work.	● If images cannot be recorded or if the recording is aborted, check the connections and DV equipment settings. ● You cannot start recording until the images from the DV equipment appear on the television. ● Recording may not be performed as desired if the time codes on the tape in the DV equipment are not successive. ● Depending on the equipment, the DV automatic recording may not operate properly. ● You can only record audio/video images on a DV tape.	**42** — — — —

Play

Play fails to start even when [▶] (PLAY) is pressed. **Play starts but then stops immediately.**	● Insert the disc correctly with the label facing up. ● The disc is dirty. ● You tried to play a blank disc or disc unplayable on this unit. ● You tried to play a +RW that needs to be finalized on the equipment used for recording. ● When recording to DVD-RAM using “EP (8 Hours)” mode, play may not be possible on DVD players that are compatible with DVD-RAM. In this case use “EP (6 Hours)” mode. ● You cannot play discs during DV automatic recording.	**24** **64** **6–7** — **50** —
Audio and video momentarily pause.	● This occurs between playlist chapters. ● This occurs as scenes change during Quick View.	— —
DVD-Video is not played.	● You have set a ratings level to limit DVD-Video play. Change this setting.	**50**
Alternative soundtrack and subtitles cannot be selected.	● The languages are not recorded on the disc. ● You may have to use the disc’s menus to select languages.	— **30**
No subtitles.	● Subtitles are not recorded on the disc. ● Set “Subtitle” on the on-screen menu to “On”.	— **35**
Angle cannot be changed.	● Angles can only be changed during scenes where different angles are recorded.	—
You have forgotten your ratings password. **You want to cancel the ratings level.**	● While the disc tray is open, press [DVD] to select the DVD drive, then press and hold [● REC] and [▶×1.3] on this unit at the same time for 5 or more seconds (“INIT” will appear on the unit’s display). The ratings level returns to “8”.	—
Quick View does not work.	● This does not work when audio is other than Dolby Digital. ● This does not work when recording is in XP or FR mode.	— —
The resume play function does not work.	● The stopped position is cleared when: – you press [■] several times. – you open the tray. – DVD-A CD VCD and MP3 you turn the unit off.	—
The Video CD picture does not display properly.	● When connecting to Multi-system TV, select “NTSC” in “TV System” in the Setup menu. ● When connecting to PAL TV, the lower part of the picture cannot be displayed correctly during search.	**51** —
Time Slip does not work.	● Time Slip does not work when the unit’s “TV System” settings are different from the title recorded on the disc.	**51**
When playing PAL disc, picture distorted.	● Set “Transfer” in Picture menu to “Auto”.	**36**

Edit		Page
Cannot format.	● The disc is dirty. Wipe with a damp cloth and then wipe dry. ● You tried formatting a disc that is not compatible with this unit.	**below** **6–7**
Cannot create chapters.	● The unit writes the chapter division information to the disc when you turn it off or remove the disc. The information is not written if there is an interruption to the power before this.	—
Cannot mark the start point or the end point during "Partial Delete" operation.	● These operations are not possible with still pictures. ● You cannot set points if they are too close to each other. You cannot set an end point before a start point.	— —
Cannot delete chapters.	● When the chapter is too short to delete, use "Combine Chapters" to make the chapter longer.	**39**
The available recording space doesn't increase even after deleting recordings on the disc.	● Available recording space on DVD-R, DVD-R DL, +R or +R DL does not increase even after deleting previously recorded titles. ● Available recording space on DVD-RW (DVD-Video format) or +RW increases only when the last recorded title is deleted. It does not increase if other titles are deleted.	— —
Cannot create a playlist.	● You cannot select all the chapters at once in a title if the title also includes still pictures. Select them individually.	—

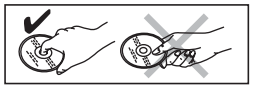
To reset this unit

To return all the settings other than the main ones to the factory preset.	● Select "Yes" in "Shipping Condition" in the Setup menu. All the settings except for the ratings level, ratings password, Owner ID and time settings return to the factory preset. The timer recording programmes are also cancelled. ● Select "Yes" in "Default Settings" in the Setup menu. All the settings other than the programmed channels, time settings, disc language settings, ratings level, ratings password, Owner ID and remote control code, return to the factory presets. ● Press and hold [∨ CH] and [CH ∧] on this unit for about 5 seconds. All the settings except for the ratings level, ratings password, Owner ID and time settings return to the factory preset. The timer recording programmes are also cancelled.	**52** **52** —
To reset the ratings level settings.	● While the disc tray is open, press [DVD] to select the DVD drive, then press and hold [● REC] and [▶ ×1.3] on this unit at the same time for 5 or more seconds.	—
To restore the unit if it freezes due to one of the safety devices being activated.	● Press and hold [⏻/I] on this unit for 10 seconds. (The settings remain.)	—

Disc handling

■ How to hold a disc

Do not touch the recorded surface.

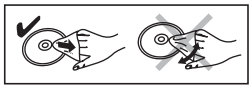


■ Concerning non-cartridge discs

Be careful about scratches and dirt.

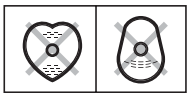
■ If there is dirt or condensation on the disc

Wipe with a damp cloth and then wipe dry.



■ Handling precautions

- Do not attach labels or stickers to discs. (This may cause disc warping and un-balanced rotation, rendering it unusable.)
- Write on the label side of the disc only with a soft, oil-based felt pen. Do not use ballpoint pens or other hard writing implements.
  (This may cause disc warping and un-balanced rotation, rendering it unusable.)
- Do not use record cleaning sprays, benzine, thinner, static electricity prevention liquids or any other solvent.
- Do not use scratch-proof protectors or covers.
- Do not drop stack, or impact discs. Do not place objects on them.
- Do not use the following discs:
  –Discs with exposed adhesive from removed stickers or labels (rental discs, etc.).
  –Discs that are badly warped or cracked.
  –Irregularly shaped discs, such as heart shapes.



- Do not place in the following areas:
  –In direct sunlight.
  –In very dusty or humid areas.
  –Near a heater.
  –Locations susceptible to significant difference in temperature (condensation can occur).
- To protect discs from scratches and dirt, return them to their cases or cartridges when you are not using them.

Unit care

The precision parts in this unit are readily affected by the environment, especially temperature, humidity, and dust. Cigarette smoke also can cause malfunction or breakdown.

To clean this unit, wipe with a soft, dry cloth.

- Never use alcohol, paint thinner or benzine to clean this unit.
- Before using chemically treated cloth, carefully read the instructions that came with the cloth.

Observe the following points to ensure continued listening and viewing pleasure.

Dust and dirt may adhere to the unit's lens over time, making it impossible to record or play discs.

Use the **DVD lens cleaner** (RP-CL720E) about once every year, depending on frequency of use and the operating environment. Carefully read the lens cleaner's instructions before use.

Component video output
Component signal outputs the colour difference signals (P_B/P_R) and luminance signal (Y) separately in order to achieve high fidelity in reproducing colours. If the television is compatible with progressive output, a high quality picture can be output because this unit's component video output terminal outputs a progressive output signal.

CPRM (Content Protection for Recordable Media)
CPRM is technology used to protect broadcasts that are allowed to be recorded only once. Such broadcasts can be recorded only with CPRM compatible recorders and discs.

Dolby Digital
This is a method of coding digital signals developed by Dolby Laboratories. Apart from stereo (2-channel) audio, these signals can also be multi-channel audio. A large amount of audio information can be recorded on one disc using this method.

Down-mixing
This is the process of remixing the multi-channel audio found of some discs into two-channel output.
Some multi-channel DVD-Audio will prevent down-mixing of all or part of their contents if this is the manufacturer's intention.
This unit cannot down-mix these types of discs. (When the disc is automatically down-mixed, audio will not be output correctly when using headphones, etc. Audio is output only with the front two channels, etc.)

DTS (Digital Theater Systems)
This surround system is used in many movie theaters. There is good separation between the channels, so realistic sound effects are possible.

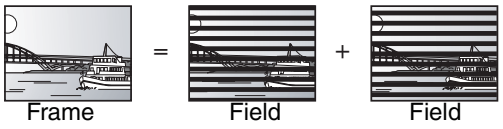
Dynamic range
Dynamic range is the difference between the lowest level of sound that can be heard above the noise of the equipment and the highest level of sound before distortion occurs. Dynamic range compression means reducing the gap between the loudest and softest sounds. This means you can listen at low volumes but still hear dialogue clearly.

Film and video
DVD-Videos are recorded using either film or video. This unit can determine which type has been used, then uses the most suitable method of progressive output.
Film:
Recorded at 25 frames per second (PAL discs) or 24 frames per second (NTSC discs). (NTSC discs recorded at 30 frames per second as well.) Generally appropriate for motion picture films.
Video:
Recorded at 25 frames/50 fields per second (PAL discs) or 30 frames/60 fields per second (NTSC discs). Generally appropriate for TV drama programmes or animation.

Finalize
A process that makes play of a recorded CD-R, CD-RW, DVD-R, etc. possible on equipment that can play such media. You can finalize DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R or +R DL on this unit.
After finalizing, the disc becomes play-only and you can no longer record or edit. However, finalized DVD-RW can be formatted to become recordable.

Formatting
Formatting is the process of making media such as DVD-RAM recordable on recording equipment.
You can format DVD-RAM, DVD-RW (only as DVD-Video format), +R, +R DL or +RW on this unit.
When you use a new DVD-RW, +R, +R DL or +RW, it must be formatted.
Formatting deletes irrevocably all contents.

Frames and fields
Frames refer to the single images that constitute the video you see on your television. Each frame consists of two fields.



- A frame still shows two fields, so there may be some blurring, but picture quality is generally better.
- A field still shows less picture information so it may be rougher, but there is no blurring.

JPEG (Joint Photographic Experts Group)
This is a system used for compressing/decoding colour still pictures. If you select JPEG as the storage system on digital cameras etc., the data will be compressed to 1/10–1/100 of its original size. The feature of JPEG is less deterioration in picture quality considering the degree of compression.

MP3 (MPEG Audio Layer 3)
An audio compression method that compresses audio to approximately one tenth of its size without any considerable loss of audio quality. You can play MP3 you have recorded onto DVD-R, CD-R and CD-RW.

Pan&Scan/Letterbox
In general, DVD-Video are produced with the intention that they be viewed on a widescreen television (16:9 aspect ratio), so images often don't fit regular (4:3 aspect ratio) televisions. Two styles of picture, "Pan & Scan" and "Letterbox", deal with this problem.

Pan & Scan: The sides are cut off so the picture fills the screen.

Letterbox: Black bands appear at the top and bottom of the picture so the picture itself appears in an aspect ratio of 16:9.

Playback control (PBC)
If a Video CD has playback control, you can select scenes and information with menus.
(This unit is compatible with version 2.0 and 1.1.)

Progressive/Interlace
The PAL video signal standard has 625 (or 576) interlaced (i) scan lines, whereas progressive scanning, called 625p (or 576p), uses twice the number of scan lines. For the NTSC standard, these are called 525i (or 480i) and 525p (or 480p) respectively.
Using progressive output, you can enjoy the high-resolution video recorded on media such as DVD-Video.
Your television must be compatible to enjoy progressive video.
Panasonic televisions with 625 (576)/50i · 50p, 525 (480)/60i · 60p input terminals are progressive compatible.

Protection
You can prevent accidental deletion by setting writing protection or deletion protection.

RGB
This refers to the three primary colours of light, red (R), green (G), and blue (B) and also the method of producing video that uses them. By dividing the video signal into the three colours for transmission, noise is reduced for even higher quality images.

Sampling frequency
Sampling is the process of converting the heights of sound wave (analog signal) samples taken at set periods into digits (digital encoding). Sampling frequency is the number of samples taken per second, so larger numbers mean more faithful reproduction of the original sound.

Thumbnail
This refers to a miniature representation of a picture used to display multiple pictures in the form of a list.

TIFF (Tag Image File Format)
This is a system used for compressing/decoding colour still pictures. A common format for storing high quality images on digital cameras and other devices.

■ AMPLIFIER SECTION

RT30

RMS Output Power: Dolby Digital Mode
- **Front:** 110 W per channel (3 Ω), 1 kHz, 10 %, THD
- **Center:** 225 W (6 Ω), 1 kHz, 10 %, THD
- **Surround:** 90 W per channel (4 Ω), 1 kHz, 10 %, THD
- **Subwoofer:** 225 W (6 Ω), 100 Hz, 10 %, THD
- **Total RMS Dolby Digital Mode Power:** 850 W

DIN Output Power: Dolby Digital Mode
- **Front:** 80 W per channel (3 Ω), 1 kHz, 1 %, THD
- **Center:** 75 W (6 Ω), 1 kHz, 1 %, THD
- **Surround:** 65 W per channel (4 Ω), 1 kHz, 1 %, THD
- **Subwoofer:** 75 W (6 Ω), 100 Hz, 1 %, THD
- **Total DIN Dolby Digital Mode Power:** 440 W

Input sensitivity/input impedance:
- **MUSIC PORT** 100 mV/4.7 kΩ

RT70

RMS Output Power: Dolby Digital Mode
- **Front:** 90 W per channel (4 Ω), 1 kHz, 10 %, THD
- **Center:** 320 W (4 Ω), 1 kHz, 10 %, THD
- **Surround:** 90 W per channel (4 Ω), 1 kHz, 10 %, THD
- **Subwoofer:** 320 W (4 Ω), 100 Hz, 10 %, THD
- **Total RMS Dolby Digital Mode Power:** 1000 W

DIN output power: Dolby Digital Mode
- **Front:** 65 W per channel (4 Ω), 1 kHz, 1 %, THD
- **Center:** 220 W (4 Ω), 1 kHz, 1 %, THD
- **Surround:** 65 W per channel (4 Ω), 1 kHz, 1 %, THD
- **Subwoofer:** 220 W (4 Ω), 100 Hz, 1 %, THD
- **Total DIN Dolby Digital Mode Power:** 700 W

Input sensitivity/input impedance
- **MUSIC PORT** 100 mV/4.7 kΩ

■ FM TUNER SECTION

Frequency range: 87.50 to 108 MHz (50 kHz step)
Antenna terminals: 75 Ω unbalanced

■ AM TUNER SECTION

Frequency range: 522 to 1629 kHz (9 kHz step)

■ RECORDER SECTION

Recording system

DVD-RAM : DVD Video Recording format
DVD-R : DVD-Video format
DVD-R DL (Dual Layer) : DVD-Video format
DVD-RW : DVD-Video format
+R
+R DL (Double Layer)
+RW

Recordable discs

DVD-RAM: Ver. 2.0
Ver. 2.1/3X-SPEED DVD-RAM Revision 1.0
Ver.2.2/5X-SPEED DVD-RAM Revision 2.0

DVD-R: for General Ver. 2.0
for General Ver. 2.0/4X-SPEED DVD-R Revision 1.0
for General Ver.2.x/8X-SPEED DVD-R Revision 3.0
for General Ver.2.x/16X-SPEED DVD-R Revision 6.0
for DL Ver.3.0
for DL Ver.3.x/4X-SPEED DVD-R for DL Revision 1.0

DVD-RW: Ver. 1.1
Ver. 1.X/2X-SPEED DVD-RW Revision 1.0
Ver. 1.X/4X-SPEED DVD-RW Revision 2.0
Ver. 1.X/6X-SPEED DVD-RW Revision 3.0

+R: Ver. 1.0
Ver. 1.1
Ver. 1.2
Ver. 1.3
for DL Ver.1.0

+RW: Ver. 1.1
Ver.1.2/4X-SPEED

Recording time Maximum 8 hours (using 4.7 GB disc)
XP: Approx. 1 hour, SP: Approx. 2 hours
LP: Approx. 4 hours, EP: Approx. 6 hours/8 hours

Playable discs

DVD-RAM : DVD Video Recording format
DVD-R : DVD-Video format, MP3, JPEG
DVD-R DL (Dual Layer) : DVD-Video format
DVD-RW : DVD-Video format, DVD Video Recording format
+R, +R DL (Double Layer), +RW
DVD-Video, DVD-Audio, CD-Audio (CD-DA), Video CD,
CD-R/CD-RW (CD-DA, Video CD, SVCD, MP3, JPEG formatted discs)
SVCD

Optical pick-up System with 1 lens, 2 integration units
(662 nm wavelength for DVDs, 780 nm wavelength for CDs)

LASER specification

Class 1 LASER Product
Wave length: 780 nm (CDs), 662 nm (DVDs)
Laser power:
No hazardous radiation is emitted with the safety protection

Audio

Recording system: Dolby Digital 2ch
Audio in: AV1/AV2 (21 pin), AV3 (pin jack)
Input level: Standard: 0.5 Vrms, Full scale: 2.0 Vrms at 1 kHz
Input impedance: More than 10 kΩ
Audio out: AV1/AV2 (21 pin), Audio Out (pin jack)
Output level:
Standard: 0.5 Vrms, Full scale: 2.0 Vrms at 1 kHz
Output impedance: Less than 1 kΩ

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Video

Video system:
PAL colour signal, 625 lines, 50 fields
NTSC colour signal, 525 lines, 60 fields

Recording system: MPEG2 (Hybrid VBR)

Video in (PAL/NTSC):
AV1/AV2 (21 pin), AV3 (pin jack) 1 Vp-p 75 Ω, termination

S-Video in (PAL/NTSC):
AV2 (21 pin), AV3 (S terminal) 1 Vp-p 75 Ω, termination

Video out (PAL/NTSC):
AV1/AV2 (21 pin), Video Out (pin jack) 1 Vp-p 75 Ω, termination

S-Video out (PAL/NTSC):
AV1 (21 pin), S-Video Out (S terminal) 1 Vp-p 75 Ω, termination

RGB out (PAL/NTSC):
AV1 (21 pin) 0.7 Vp-p (PAL) 75 Ω, termination

Component video output (NTSC 480p/480i, PAL 576p/576i)
Y: 1.0 Vp-p 75 Ω, termination
P_B: 0.7 Vp-p 75 Ω, termination
P_R: 0.7 Vp-p 75 Ω, termination

Television system

Tuner system: PAL-I
Channel coverage: UHF:21–68
RF converter output: Not provided

DV input IEEE 1394 Standard, 4 pin : 1 pc

■ SPEAKER SECTION

RT30

●Front speakers SB-FS440
Type: 1 way, 1 speaker system, Bass-ref.
Full range: 6.5 cm CONE type
Impedance/Input power (IEC): 3 Ω/110 W (Max)※
Output sound pressure: 80 dB/W (1 m)
Frequency range:
102 Hz to 25 kHz (−16 dB), 113 Hz to 22 kHz (−10 dB)
Dimensions (W×H×D): 92 mm×273 mm×95.4 mm
Mass: Approx. 0.84 kg

●Center speaker SB-PC640
Type: 1 way, 2 speaker system, Bass-ref.
Full range: 6.5 cm CONE type ×2
Impedance/Input power (IEC): 6 Ω/250 W (Max)※
Output sound pressure: 84 dB/W (1 m)
Frequency range:
105 Hz to 25 kHz (−16 dB), 125 Hz to 22 kHz (−10 dB)
Dimensions (W×H×D): 270 mm×92 mm×95.4 mm
Mass: Approx. 1.3 kg

●Surround speakers SB-FS441
Type: 1 way, 1 speaker system, Bass-ref.
Full range: 6.5 cm CONE type
Impedance/Input power (IEC): 4 Ω/90 W (Max)※
Output sound pressure: 80 dB/W (1 m)
Frequency range:
96 Hz to 25 kHz (−16 dB), 120 Hz to 22 kHz (−10 dB)
Dimensions (W×H×D): 92 mm×135 mm×95.4 mm
Mass: Approx. 0.75 kg

●Subwoofer SB-W440
Type: 1 way, 1 speaker system, Bass-ref.
Woofer: 16 cm CONE type
Impedance/Input power (IEC): 6 Ω/250 W (Max)
Output sound pressure: 80 dB/W (1 m)
Frequency range: 32 Hz to 220 Hz (−16 dB)
38 Hz to 180 Hz (−10 dB)
Dimensions (W×H×D): 183 mm×396 mm×267 mm
Mass: Approx. 4 kg

RT70

●Front speakers SB-FS71
Type: 2 way, 2 speaker system, Bass-ref.
Woofer/Tweeter: 6.5 cm CONE/6 cm CONE type
Impedance/Input power (IEC): 4 Ω/90 W (Max)※
Output sound pressure: 81 dB/W (1 m)
Frequency range:
82 Hz to 30 kHz (−16 dB), 95 Hz to 25 kHz (−10 dB)
Dimensions (W×H×D): 252 mm×1123 mm×234 mm
Mass: Approx. 3.7 kg

●Center speaker SB-PC740
Type: 1 way, 2 speaker system, Bass-ref.
Full range: 6.5 cm CONE type ×2
Impedance/Input power (IEC): 4 Ω/320 W (Max)※
Output sound pressure: 84 dB/W (1 m)
Frequency range:
105 Hz to 25 kHz (−16 dB), 125 Hz to 22 kHz (−10 dB)
Dimensions (W×H×D): 270 mm×92 mm×95.4 mm
Mass: Approx. 1.25 kg

●Surround speakers SB-FS72
Type: 1 way, 1 speaker system, Bass-ref.
Full range: 6.5 cm CONE type
Impedance/Input power (IEC): 4 Ω/90 W (Max)※
Output sound pressure: 80 dB/W (1 m)
Frequency range:
87 Hz to 25 kHz (−16 dB), 98 Hz to 22 kHz (−10 dB)
Dimensions (W×H×D): 252 mm×1123 mm×234 mm
Mass: Approx. 3.7 kg

●Subwoofer SB-W940
Type: 1 way, 1 speaker system, Bass-ref.
Woofer: 17 cm CONE type
Impedance/Input power (IEC): 4 Ω/320 W (Max)
Output sound pressure: 81 dB/W (1 m)
Frequency range:
29 Hz to 160 Hz (−16 dB), 34 Hz to 135 Hz (−10 dB)
Dimensions (W×H×D): 235 mm×448 mm×397 mm
Mass: Approx. 6.7 kg

■ GENERAL

Region code: # 2
Operating temperature range: 5 to 40 °C
Operating humidity range: 10 to 80 % RH (no condensation)
Power supply: AC 230 to 240 V, 50 Hz
Power consumption: **RT30** 126 W
RT70 145 W
Dimensions (W×H×D): 430 mm×75 mm×385 mm
Mass: **RT30** Approx. 5.2 kg
RT70 Approx. 5.3 kg
(Dimensions and Mass do not include the speakers.)

※ Ratings with the low cut filter equipped amplifier.

Note

- Specifications are subject to change without notice. Mass and dimensions are approximate.
- Connect the supplied speakers and subwoofer to this unit only. Do not attempt to connect the supplied speakers and subwoofer to the external amplifier and so on.
- Total harmonic distortion is measured by a digital spectrum analyzer.

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